North Carolina Community College System

College and Career Readiness

Adult Basic Education

Content Standards

Levels 1 - 4, Grade Levels 0.0 - 8.9

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North Carolina Adult Education Standards

Overview

The North Carolina Adult Education Standards represent a proactive effort by North Carolina adult educators to ensure rigor and consistency in program content and student outcomes for adult learners throughout the state. The Standards Initiative is a leadership activity funded by a grant from the North Carolina Community College System. This document was developed and revised by an outstanding cadre of the state's adult educators.

In developing these standards, the teams worked to write world-class standards customized for adult learners. These standards reflect sensible criteria for usefulness, intelligibility, rigor, and measurability. They also focus on academics, contain a mix of skills and content, and represent a reasonable pattern of cumulative learning that is manageable. The North Carolina Adult Education Standards support instructors in developing learning opportunities that prepare adult learners for successful transition to higher education, vocational and career development, and effective involvement in their communities as individuals, parents, workers, and citizens.

The fundamental goal of statewide standards is to ensure high levels of achievement for all adult learners in North Carolina. The standards provide consistent content and performance measures for implementation in all programs funded and certified by the North Carolina Community College System. The standards are valuable to the future of adult education throughout the nation. The value of statewide Adult Education Standards include:

Value to Adult Learners. Standards provide a framework for adult learners to maximize their potential in their community, family, college and careers.

Value to Instructors. Standards provide an easy to understand model to guide instruction.

Value to Programs. Standards improve articulation among adult educators, enabling them to assess student performance and measure program effectiveness with greater accuracy.

Value to the State of North Carolina. Standards establish a strong foundation for effective delivery of services to all adult learners. They provide consistency and continuity of educational services throughout the state.

Value to the Profession of Adult Education. Standards raise the bar on instructional performance and accountability, which increases the credibility of adult education within the field of teaching and learning. In addition, the North Carolina Adult Education Standards complement similar efforts on the national level by providing the framework for adult learners to maximize their potential in the community, family, college and careers.

The Development Process

The process of developing these standards was highly participatory and encompassed active involvement and input from many adult educators across the state. The standards project began in 2007 with statewide implementation in 2011. The Appalachian State University Adult Basic Skills Professional Development Project (ABSPD) facilitated the development.

Phase 1, 2007: Teams of adult educators met to write the first draft of the reading and writing content standards and then continued to provide review, feedback, and comments for improvement. These teams consulted a variety of resources from other states and the standards were informed by those states' existing standards. The writing teams included ABS Directors; Instructors and Coordinators for ABE, GED, AHS, ESL, CED, Family Literacy, and Distance Learning; Specialists in Assessment, Curriculum, Retention, and AHS; Trainers; and Certified Resource Specialists (CRS).

Phase 2, 2008-2009: Forums were held at three sites across the state for review and feedback. Each reviewer was given review forms and a draft copy of the standards document so that adult educators from their program could also complete reviews and mail them to ABSPD. The edits and suggestions received during this phase were integrated into a third draft. Additionally, teams of adult educators met to write the first draft of the mathematics and technology content standards. These team members continued to provided review, feedback and comments for improvement. In 2009 ABS educators reviewed the mathematics and technology content standards and provided feedback via an online survey.

Phase 3, 2010: Development of teaching activities to correspond to each benchmark was begun in January 2010. All Adult Basic Skills program and Community-based Literacy organization directors were invited to send a Certified Resource Specialist to Advance Institute in May to begin the piloting process for the NC ABE Reading and Writing Content Standards. The Certified Resource Specialists developed additional real-life applications and an implementation plan for their programs. Professional development for trainers was held in Fall 2010. Revisions were made and online and face-to-face training was designed.

Phase 4, 2011: Statewide implementation training began across the state. Instructor training continues through the *Applying Content Standards: GPS for Success* training offered by the North Carolina Community College System College and Career Readiness Department and the Adult Basic Skills Professional Development Project at Appalachian State University.

Phase 5, 2013-2014: The standards were revised and given a new name, *North Carolina Community College System Adult Education Standards, Part 1*. The standards are now aligned with College and Career Readiness Standards for Adult Education released by the Office of Career, Technical, and Adult Education (OCTAE), US Department of Education in April 2013. Subject matter experts examined the Common Core from the perspective of adult education and distilled the "core of the core" that is most important for our adult students. The CCR Standards' goal is to help successfully prepare students for the demands of post-secondary education and workforce entry.

The NCCCS Adult Education Content Standards document now includes standards for grade level equivalencies from beginning level through adult secondary education. The standards are housed on the Adult Basic Skills Professional Development (ABSPD) website: http://www.abspd.appstate.edu. Implementation training, *Applying Content Standards: GPS for Success*, continues to be offered throughout the year by ABSPD staff.

What Are Standards?

Standards are broad statements of the knowledge, skills, processes, and other understandings that guide curriculum in order for students to attain high levels of competency in challenging subject matter. They define what a learner should know and be able to do within a specific content area. Standards reflect the knowledge and skills of an academic discipline and reflect what stakeholders of educational systems recognize as essential to be taught and learned. They provide a clear outline of content and skills so that programs can develop and align curriculum, instruction, and assessment. Many of the standards can be taught simultaneously; they are not written in sequential order.

The standards do not dictate andragogy or teaching styles, nor prescribe class lessons or assignments. They are not driven by any particular reading series or text. The standards and benchmarks are not written in sequential order. As students master skills to reach one benchmark they may also reach benchmarks in other content areas.

Reading Content Standards: The Reading Content Standards include an emphasis on logical reasoning and critical thinking, which are skills that colleges and the business world feel are critical for success. They include all skills necessary to interpret printed material, such as books, magazines, and correspondence as well as charts, graphs, schedules, and environmental print. Those skills include symbol mastery, phonological awareness, decoding, word recognition, word analysis, comprehension, fluency and reading informational text and literature.

To become college and career ready, students need to grapple with works of exceptional craft and thought whose range extends across genres, cultures, and centuries. By engaging with increasingly complex readings, students gain the ability to evaluate intricate arguments and the capacity to surmount the challenges posed by complex texts. The vocabulary standards focus on understanding words and phrases and their nuances and relationships, and on acquiring new vocabulary, particularly general academic and domain-specific words and phrases. Students advancing through the levels are expected to meet each level's specific standards and retain or further develop skills and understanding mastered in preceding levels. The reading standards are listed on page 1.9.

Writing Content Standards: The Writing Content Standards include all skills necessary to communicate in writing for a variety of purposes including those as family members, employees, citizens, and lifelong learners. Those skills include readability and accuracy; composition; capitalization, punctuation, and spelling; grammatical concepts and sentence structure; and parts of speech, verb tense, and usage.

To be college and career ready writers, students must take task, purpose, and audience into careful consideration, choosing words, information, structures, and formats deliberately. The Writing Standards cultivate the development of three mutually reinforcing writing capacities: crafting arguments, writing to inform and explain, and fashioning narratives about real or imagined experiences. The overwhelming focus of writing throughout the levels is on arguments and informative/explanatory texts. Writing Standards stress the importance of the writing-reading connection by requiring students to draw upon and use evidence from literary and informational texts as they write arguments or inform/explain. Because of the centrality of writing to most forms of inquiry, research standards are prominently included in this strand as well. The writing standards are listed on page 1.9.

Speaking and Listening: Including, but not limited to, skills necessary for formal presentations, the Speaking and Listening Standards require students to develop a range of broadly useful oral communication and interpersonal skills. The standards ask students to learn to work together, express and listen carefully to ideas, integrate information from oral, visual, quantitative, and media sources, evaluate what they hear, use media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task. The standards are listed on the following page.

Mathematics Content Standards: The Mathematics Content Standards include an emphasis on mathematical communication and connections using real world problem-solving, algebraic reasoning, and calculator skills; these are skills that colleges and the business world feel are essential for success. They include the skills necessary to support the development of mathematical understanding, to solve mathematical problems, and to prepare students for the workplace and future study. Those skills include number sense and operations, algebraic thinking, geometry, measurement, data analysis, statistics and probability.

Beginning level standards focus almost entirely on counting, cardinality, number sense, and base-ten operations. This includes developing an understanding of whole number relationships and two-digit place value, as well as strategies for (and fluency with) addition and subtraction. To provide a foundation for algebra, standards introduce the concept of an equation, a variable, and the meaning of the equal sign, all within the context of addition and subtraction within 20. In addition to number, some attention is given to describing and reasoning about geometric shapes in space as a basis for understanding the properties of congruence, similarity, and symmetry, and developing an understanding of linear measurement (length). The standards are listed on the following page.

Technology/Computer Literacy Content Standards: Technology/Computer Literacy skills represent a new adult basic skill. When acquisition and enhancement of technology/computer literacy skills is integrated into the adult basic skills curriculum, these skills enable students to improve and enhance their learning of the other basic skills. The Technology/Computer Literacy Content Standards identify the essential knowledge and skills that all students need to be active, lifelong learners in a technology-intensive environment. The Technology/Computer Literacy Content Standards describe the progressive development of knowledge and skills in six standards: Technology & Society, Database Management, Spreadsheets, Desktop Publishing, Multimedia, and Internet & Telecommunications. The Benchmarks include essential skills with reinforcement through application and focus on personal safety and ethical use of resources and information. The standards are listed on the following page.

NC Adult Education Standards for GLE 0.0 to 8.9

Reading

R.1 Print Concepts/Phonemic Awareness/Word Analysis: The student will develop and demonstrate knowledge of print concepts and phonemic awareness, word analysis, and decoding strategies to pronounce and derive meaning of words.

R.2 Vocabulary: The student will develop and demonstrate knowledge of vocabulary skills that include analyzing word structure, determining the meaning of words from context, sorting words into groups by meaning and relationships among words, and applying vocabulary skills in order to understand a wide and varied vocabulary that enhances comprehension of literary, functional, and informational text.

R.3 Comprehension: The student will develop and demonstrate knowledge of a variety of comprehension strategies to derive meaning from literary, functional, and informational text.

R.4 Fluency: The student will develop and demonstrate knowledge of different reading strategies to read a variety of literary, functional, and informational text with accuracy and speed.

R.5 Literature and Informational Text: The student will develop and demonstrate knowledge of a range of increasingly complex literature and informational texts.

Writing

W.1 Readability/Accuracy: The student will develop and apply knowledge of the basic written English language.

W.2 Capitalization, Punctuation, & Spelling: The student will develop and apply knowledge of the rules for capitalization, punctuation, and spelling to complete a variety of writing tasks.

W.3 Grammatical Concepts/Sentence Structure: The student will develop and apply knowledge of grammatical concepts and sentence structure to complete a variety of writing tasks.

W.4 Parts of Speech, Verb Tense, and Usage: The student will apply knowledge of parts of speech, verb tense, and usage to complete a variety of writing tasks.

W.5 Composition: The student will develop and apply the writing process to communicate in writing for a variety of purposes.

Speaking and Listening

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.

S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.

Mathematics

M.1 Number Sense and Operations: Students will develop and apply concepts of number sense and operations to explore, analyze, and solve a variety of mathematical and real-life problems.

M.2 Measurement: Students will develop and apply concepts of standard measurements and use measurement tools to explore, analyze, and solve mathematical and real-life problems.

M.3 Geometry: Students will develop and apply concepts of geometric properties, relationships, and methods to explore, analyze, and solve mathematical and real-life problems.

M.4 Data Analysis, Statistics, and Probability: Students will develop and apply concepts of data analysis and probability to explore, analyze, and solve mathematical and real-life problems.

M.5 Algebraic Thinking: Students will develop and apply concepts of basic algebra, patterns, relationships, expressions, equations and functions to explore, analyze, and solve mathematical and real-life problems.

Technology/Computer Literacy

T.1 Society, Issues, & Ethical Behaviors: The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.

T.2 Databases: The student will demonstrate an understanding of databases and ability to create databases.

T.3 Spreadsheets: The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.

T.4 Desktop Publishing: The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.

T.5 Multimedia: The student will demonstrate an understanding of multimedia and the ability to create multimedia presentations.

T.6 Internet & Telecommunication Resources: The student will demonstrate an ability to utilize Internet and other telecommunication resources.

Definitions for Standards-related Terms

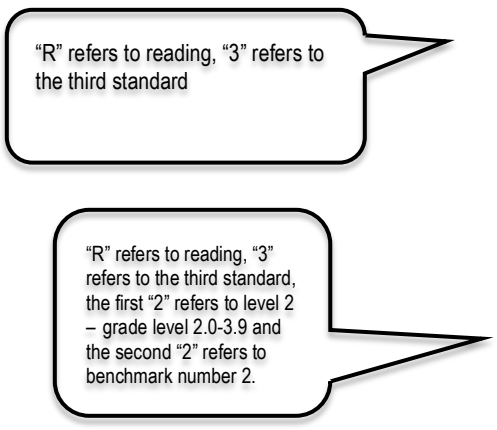
Content Standards: Content standards define what a learner should know and be able to do within a specific content area. They reflect the knowledge and skills of an academic discipline and reflect what stakeholders of educational systems recognize as essential to be taught and learned. Content standards provide a clear outline of content and skills so that programs can develop and align curriculum, instruction, and assessments. Content standards do not dictate andragogy or teaching styles, nor prescribe classroom lessons or assignments. Content standards are not written in sequential order.

Benchmarks: Benchmarks are brief, crisp, and written to the point. They are the specific set of skills learners need to develop and achieve in order to meet the more broadly stated standard. Benchmarks provide more detailed information on the specific skills and contexts learners must master to meet the standard. They reference specific proficiency levels and serve as checkpoints to monitor each learner's progress toward meeting a standard. Benchmarks are not written in sequential order; as students master skills to reach benchmarks, they may also reach benchmarks in other standards and areas.

Performance Indicators: Performance indicators specify how competent or adept a learner's demonstration must be to show attainment of the content standard. In other words, a performance standard defines "how good is good enough" to meet the content standard. Performance indicators specify particular concepts and skills that the learner must know and be able to do as defined by the content standards in greater detail with some additional explanation of the type, quality, range, and depth of the performance expectations. Instructors may choose to develop their own benchmark tasks based on the conditions stated in the performance indicators by using such resources as:

- Instructor-made assessments
- Student projects/products
- Performance samples
- End of chapter tests
- Rubrics
- Worksheets
- Computerized assessment

Numbering System: The numbering system is used to organize the content standards allowing instructors and others to refer to specific standards and benchmarks when they are connecting them to curriculum, instruction, and/or assessments. The upper case letter stands for the content area. The first number stands for the content standard, the second number refers to the federal functioning grade level, and the third number stands for the benchmark. For example, in the content standard number R.3.2.1: "R" refers to the reading content area, "3" refers to the standard, "2" refers to the level (e.g., Level 3 – Grade level 2-3.9), and "1" refers to the benchmark.



R.3 Comprehension: The student will develop and demonstrate knowledge of a variety of comprehension strategies to derive meaning from literary, functional, and informational text.	
Benchmark	**Performance Indicator**
R.3.2.1 Locate explicitly stated information in functional reading.	Look at one functional reading sample (invitations, bulletins, signs) and answer at least five questions from information explicitly stated in the reading.
R.3.2.2 Locate specific items in an alphabetical listing or a topical listing.	Locate five specific items in one alphabetical listing (e.g., class list, phone directory, dictionary) and five items in one topical listing (e.g., picture dictionary, table of contents).

The Relationship between Content Standards and Curriculum, and Assessment

Curriculum: Curriculum is best characterized as what should take place in the classroom. It describes the topics, themes, units, and questions contained within the content standards. Content standards are the framework for curriculum. Curriculum can vary from program to program, as well as from instructor to instructor. Unlike content standards, curriculum focuses on delivering the "big" ideas and concepts that the content standards identify as necessary for the learner to understand and apply. Curriculum serves as a guide for instructors by addressing teaching techniques, recommending activities, providing scope and sequence, and showing modes of presentation considered most effective. In addition, curriculum indicates the textbooks, materials, activities, and equipment that best help the learner achieve the content standards.

Assessment: Assessment defines the nature of evidence required to demonstrate that the content standard has been met. To ensure valid and reliable accountability, the assessment selected should test the state standards. Assessment should:

- Insure reliability and validity;
- Provide for pre-, interim, and post-testing;
- Align with, and test, the North Carolina Adult Education Standards;
- Be criterion – or standards – referenced;
- Inform instruction;
- Serve as an accountability measure;
- Be adaptable to a variety of instructional environments; and
- Accommodate learners with special needs.

Formal assessments are the conventional method of testing, usually driven by data and include tests such as the Comprehensive Adult Student Assessment System (CASAS) and Test for Adult Basic Education (TABE). Formal assessments are generally used to assess overall achievement or find a student's strengths and weaknesses, as well as show which lessons and types of instruction were most effective. Formal assessments usually have strict rules in their implementation and these tests must be administered under specific and similar circumstances in each instance of test taking.

Formal assessments can give instructors an overview of what needs to be retaught, relearned or reviewed, as well as show what lessons and instruction was most effective. These tests can track a student's mastery of specific skills. As one skill is tested against a standard, the student is measured against that standard and given an appropriate score. The instructor and student are left with a very succinct picture of whether the student has or has not mastered the desired skill level.

Informal assessments help instructors obtain a quick evaluation of student performance. Informal assessments are centered on content and the student's ability to meet a standard related to a specific content benchmark. Informal assessments are not data driven. Informal assessments are useful tools for evaluating students' progress in a specific area, along with previously learned knowledge in an effort to test their overall progress.

Informal assessments should be used to develop lessons and plan instruction. For example, a reading instructor may choose to use diagnostic assessments to gain additional knowledge about a student's reading ability so they can plan lessons and instruction that focuses on the components of reading that a student most needs to improve.

Guiding Principles for Teaching Adult Learners

The following guiding principles represent some of the underlying assumptions about effective learning, teaching, and assessment for adult learners.

Students practice all of the skills of the curriculum in the classroom, with varied materials, in multiple formats. If we want adult learners to gain proficiency in all areas of adult basic education—reading, writing, mathematics, technology/computer literacy, speaking, and listening—we must provide opportunities for them to practice all of those skills in a classroom setting where we can assist them. Likewise, if we want students to think critically about what they hear, see, and read, we need to work with them to develop that capacity. Since adult learners fulfill roles as family members, workers, and citizens, it is important that we provide a wide range of materials in the classroom.

Teachers respect students' diverse backgrounds, and the strengths they bring to the classroom. Adult learners vary in age, ethnicity, and experience to a degree far beyond that seen in most traditional educational settings. This variety brings both opportunities for learning and additional resources for teachers. In order to maximize learning for all students, adult educators should take the time to learn about students' backgrounds, previous schooling, and work experiences. Adults who have struggled with learning are often tremendously resourceful and bring a variety of strengths and strategies to the classroom. When teachers build on these strengths and strategies, the learning climate is significantly enhanced.

Teachers work with students to develop clear short-term and long-term goals. Most adult learners come to our programs with at least one clear goal (earning a credential, improving their English, preparing for a career, etc.). Teachers need to work with learners to articulate the steps toward these goals, thereby providing intermediate steps by which to evaluate progress. Additionally, teachers can help students look beyond their original goals in ways that promote lifelong learning and demonstrate that earning a credential is not an end point but the beginning of further opportunities.

The whole is greater than the sum of the parts. Our use of language is closely tied to our sense of self. Language patterns tell us about people's habits, beliefs, aspirations, and identities. When we teach language arts skills, therefore, we are teaching a way of looking at and presenting oneself to the world. Skillful teachers keep this in mind while they are planning and implementing their language arts curriculum. They habitually look at their lesson plans not in isolation, but as they apply to the larger task of helping students develop comfort and facility with the curriculum being taught.

Starting Out

The teaching effort is invariably assisted by thoughtful and thorough evaluation of the following parameters:

- Your style as a teacher, and how you might want to choose materials and strategies;
- Who your students are, and what they want to learn, i.e., the backgrounds, goals, and aspirations of your students;
- How to pull together materials that will help you meet your objectives, i.e., the types of instructional materials that would facilitate the teaching goals; and
- How to use and blend teaching materials to maximize learning.

Remember that one bad day in the classroom or one frustrated student does not make you a bad teacher.

Evaluation of Self and Students

The first thing to consider in planning instruction is your own comfort level; if you feel uncomfortable with your materials or planned activities, it doesn't matter how theoretically sound your plan is. You cannot teach well if you don't believe in what you are doing.

This section identifies several questions that can help your evaluate yourself, your students, and potential teaching strategies. Obviously, being comfortable with yourself when you are teaching, with the students you are teaching, and with your teaching materials will make teaching more enjoyable and rewarding. Being comfortable in all of these aspects would also be expected to enhance the quality of teaching. The following questions will help you evaluate your comfort level:

- How do you relate to your students? How would you describe your relationship with your students?
- What expectations do you have about your students' readiness to learn? Are your expectations realistic?
- Are you aware of your students' study habits? Have your talked with them about the things they need to do outside of regular class sessions, i.e., your expectations regarding homework and pre-class preparation?
- Do you expect your students to want to learn? What do you do to try to inspire students who do not enter your classroom with that desire?
- Do you know your students' goals and aspirations? Have you been direct and honest with students about how long it will take them to reach their goals?
- How do you guide students to help them develop realistic goals that address their full potential? Do you think you have students who will never reach the goals they have set for themselves? How do you handle this?

There are no right or wrong answers to these questions, only honest and dishonest ones. Most of the above questions deserve a second opinion; in fact, they deserve a few second opinions. Learning how your students would answer the above questions can be very informative. You can also gain valuable insights from a trusted colleague who is familiar with your teaching goals, philosophies, and performance.

What if student responses to the above questions appear to be markedly different from your own? You must consider the possibility that you have failed to be objective and your responses were tainted by what you think the "correct" answers should be. If that appears to be the case, your responses can be viewed as a definition of a teaching philosophy to which you aspire and for which you should strive. It should be noted that the above questions do not have "correct" answers since their purpose is to help you identify your preferred teaching style.

Another possible explanation for a marked contrast between your responses and your students' responses to the above questions is failure to adequately communicate your philosophies and expectations. Perhaps students have simply not recognized your attitudes and philosophies. In that event, an enhanced or redirected effort on your part may make a world of difference in the effectiveness of your teaching.

Students' Beliefs, Needs, and Expectations

What attitudes do students bring to your classroom? Careful consideration of the following questions will help you evaluate the beliefs, needs, and expectations of your students:

- What are the students' long-term goals?
- Have the students developed achievable, short-term goals that will lead them to achievement of their long-term goals?
- How long have the students been out of school?
- What are the students' attitudes regarding formal education?
- How would students describe past educational experiences?
- What do students expect to gain from this class?

Most Adult Basic Education students remember very negative classroom experiences. You must understand and appreciate their perceptions of those experiences in order to offer them a different classroom environment and learning approach to give them hope for success. Students who have negative self-images based on past classroom failures need to see how a new and different approach to learning offers them hope for success.

Students tend to judge their progress in relation to progress being made by other students. There will always be variation among students, so using the performance of other students as a benchmark will always lead to a substantial percentage of students evaluating themselves as inferior. That problem can be alleviated by encouraging students to judge progress against measurable goals rather than by inter-student comparisons. Whether or not the class is completely self-paced, the achievement of identified goals can provide satisfaction and improvement in self-esteem when comparison to the progress rate of other students cannot do so.

Teaching Style and Materials

The best instructors do not all teach the same way, nor do they use identical teaching materials. If it were possible for you to identify and visit the classrooms of the top ten Adult Basic Education instructors, it is highly likely that you would see ten different teaching styles and environments. Obviously, the best instructors will have adapted their classrooms to provide instruction in a way that best addresses the needs of a particular group of students, but their teaching styles will also vary based on their personalities and what they find comfortable. The materials they use to help students learn specific concepts are also likely to be different.

How do you select teaching materials that are most desirable for your teaching style and your students' learning styles? Begin by asking yourself:

- What do I think students need to learn?
- What do my students think they need to learn?
- What materials will tap my students' backgrounds and experiences in a way that will maximize learning efficiency and effectiveness?
- What materials will I be able to use comfortably?
- What materials provide adequate flexibility to address the different skill levels students bring to the classroom?

Any group of Adult Basic Education students will be quite heterogeneous; they will differ in basic and even in "prerequisite" knowledge and skill levels. You will need to evaluate these variations in order to make the best decisions about instructional methods, strategies, techniques, and materials.

Selection of teaching materials should also be based on your responses to the following questions:

- What kinds of readings have students done? What kinds will they need to do in this class?
- What types of student-student interactions will be comfortable, and what kind would make some students uncomfortable?
- What student-teacher interactions are suitable for these students?
- What teaching materials are readily available?
- How much time should I devote to finding or developing new teaching materials?
- Do I want to develop my own formative evaluations or identify published sources?
- Is it appropriate and desirable to develop my own summative evaluations?
- Are potential teaching materials adaptable to the varied goals of my students? Which will maximize learning efficiency?

Although your students are in your class because of their general skill level, each of them will have a different profile of strengths and weaknesses. Getting to know those profiles will help you make decisions about the skills you want to focus on in your class. Likewise, students may have some very specific reasons for attending your class beyond the general improvement of their literacy or their desire to earn a credential. The more you can address your students' specific goals, the more motivated and open they will be. Your attentiveness to and respect for their goals will help you establish a level of trust that will allow your students to move beyond their comfort zone, helping them to take the risks necessary for significant strides in learning.

Finally, consider what materials you are comfortable using. Do you want worksheets, or do you prefer to make up questions yourself? What kinds of readings will your students do? What language or situations, if any, would make your students uncomfortable in a classroom setting? You also need to consider what materials your program makes available to you and how much time you have to look for additional materials. A mix of materials and teaching strategies is often helpful in teaching students with different learning styles.

Planning and implementing curriculum will challenge and occasionally frustrate you. Yet as was noted in the previous section, when your lesson takes off and your students get more involved and excited than you ever would have hoped, you will find that the effort has been worthwhile.

Teaching Strategies for Reading and Writing

With every activity in which you engage your students there will be two possible lenses through which you can evaluate their skills practice: *fluency* or *correctness*. Fluency is concerned with how fully and effectively learners express their ideas and beliefs. Correctness, on the other hand, focuses on the accuracy of learners' spoken and written expression. Mastery in both areas is critical, but some activities are better suited to the development of one than the other. The purpose of grammar exercises, for instance, is to achieve correctness in writing while the goal of journal writing is to encourage fluency.

The chart below suggests a variety of instructional strategies for teaching reading and writing. Each of the strategies addresses either fluency or correctness. While it is important for students to master both fluency and correctness, some activities are more appropriate for one than the other. Grammar exercises, for example, are designed to achieve correctness, whereas journal writing builds fluency. Fluency involves expressing ideas completely and effectively. Obviously, both fluency and correctness are important writing skills, and they are important components of other basic skills.

	Direct	**Indirect**
Reading	• Phonics instruction • Reading aloud • Review of pronunciation rules • Comprehension exercises • Teacher-selected readings with follow-up questions • Teacher modeling with explicit explanations of strategy	• Group reading aloud • Silent in-class reading • Discussions of what teacher and students are currently reading • Content-focused exercises, which include reading • Teacher modeling • Visiting local libraries to select books for themselves or to read to their children
Writing	• Grammar/mechanics exercises • Directed writing exercises • Teacher feedback/commentary on independent work • Teacher modeling with explicit explanations of strategy • Review/practice for GED essay writing • Demonstration/explanation of writing strategies or models	• Journal writing • Peer review/response • Teacher modeling • Critique of class reading materials • Written responses to content-focused questions • Discussions of writing, both process and product

Understanding Text Complexity

The notion of text complexity is central for understanding and implementing the changes called for in the Common Core State Standards (CCSS). Once the standards are adopted, educators must grasp the importance of students being able to read complex text. For that reason, panelists and stakeholders asked for a full explanation of text complexity. *The Supplemental Information for Appendix A of the Common Core State Standards for English Language Arts and Literacy: New Research on Text Complexity* (NGA n.d.) addresses new research and resources supporting text complexity. Much of the information on text complexity found below—what it is, why it is important, and how to determine it—was drawn from this report.

In 2006, ACT, Inc., released research called *Reading Between the Lines* that demonstrated that the greatest predictor of success in college and careers is not a graduate's SAT scores, GPA, or even their critical thinking skills, but rather the ability to read complex text. A growing body of similar research also

supports this theory of text complexity as an important indicator of reading success. Yet the alarming fact is that, over the past 50 years, the complexity of texts students read in their classes has eroded significantly—whereas the reading demands of college, careers, and citizenship have not. The average student graduates roughly four grade levels behind where they need to be to succeed in the 21st century knowledge economy, which puts a premium on the ability to read complex text (Williamson 2006).

The standards address this challenge by insisting that students be exposed regularly to appropriately complex literary and informational text, both in the classroom and on assessments. This finds expression in the reading standards which specifies a staircase of increasing text complexity for students to master from beginning through adult secondary levels and requires increasing sophistication in students' reading comprehension ability.

Choosing rich text worthy of reading and rereading is an important first step in CCSS-aligned instruction. The process of determining text complexity is illuminating for instructors, as it replaces intuition with concrete data and a systematic investigation of the text. The CCSS defines a three-part model—embraced by the panel—for determining how easy or difficult a particular text is to read, as well as specifications for increasing text complexity as students move up the levels:

1. **Quantitative dimensions of text complexity.** The terms *quantitative dimensions* and *quantitative factors* refer to those aspects of text complexity, such as word length or frequency, sentence length, and text cohesion, that are difficult if not impossible for a human reader to evaluate efficiently, especially in long texts, and are thus typically measured by computer software.
2. **Qualitative dimensions of text complexity.** The terms qualitative dimensions and qualitative factors refer to those aspects of text complexity best measured or only measurable by an attentive human reader, such as levels of meaning or purpose, structure, language conventionality and clarity, and knowledge demands.
3. **Reader and task considerations.** While the quantitative and qualitative measures focus on the inherent complexity of the text, the CCSS model expects educators to use professional judgment to identify texts that are well matched to specific tasks or students, such as skilled readers or those with high interest in the content of the text.

Each tool described above—quantitative and qualitative—has its limitations, and none is completely accurate. However, in the following instances of selecting texts at specific grade levels, qualitative and quantitative measures can be used together, complementing one another:

1. It is recommended that educators first use *quantitative measures* to locate a text within a band level because they measure dimensions of text complexity that are challenging for individuals to evaluate when reviewing a text.
2. Once a text is located within a band by using quantitative measures, educators should use *qualitative measures* to determine other important aspects of texts and position a text at the high, middle, or low end of a grade band.

Certain measures are less valid or not applicable for specific kinds of texts. Until quantitative tools for capturing the difficulty of poetry and drama are developed, determining whether a poem or play is appropriately complex for a given grade or grade band necessarily will be a matter of professional judgment using only the qualitative characteristics of texts.

Adapted from: College and Career Readiness Content Standards for Adult Education, Office of Career, Technical and Adult Education, US Department of Education, April, 2013.

Teaching Strategies for Mathematics: Levels of Learning

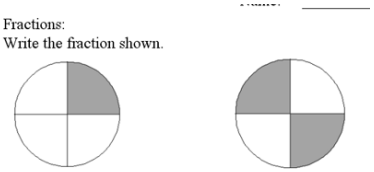
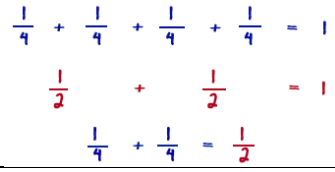
The term "level" refers to the order that information presented mathematically is processed and learned. Mahesh C. Sharma, in "Learning Problems in Mathematics: Diagnostic and Remedial Perspectives," states that "almost all mathematics teaching activities, in most classrooms, take place at the abstract level. That is where most textbooks are; that is where most of the tests and examinations are." For students who have not mastered particular math content, he proposes the following order or "Levels of Math" as effective for teaching mathematics: intuitive, concrete/experiential, pictorial/representational, abstract, applications, and communication. The chart on the next page explains each level and gives an example of what that level would look like in the classroom.

Sharma wrote, "The mastery of a given mathematical concept passes from the intuitive level of understanding to the level where the student can explain how he has arrived at a particular result and can explain the intricacies and the concept. In many of the regular classroom teaching situations, the teacher may begin at the abstract form of the concept. As a result the student may face difficulty in learning the concept or procedure being taught. Even if he has understood the procedure for solving that problem he may soon forget it. Later when the teacher begins a new concept he may assume, incorrectly, that the mastery in the previous concept is still present and therefore may begin the new concept at a higher level, i.e., the abstract level, creating difficulty for the student. This cycle continues and eventually the student begins to lose the teacher's explanations. The student begins to have difficulty in learning mathematics, which then results in the failure and that develops a fear of mathematics."

This hierarchy of learning can in turn offer a structure for the teacher to follow. If our goal is for students to learn well and do well on test, instructors should do the following when planning instruction in mathematics:

- Introduce concepts at the intuitive level and lead students through all the levels to the communication level.
- Make sure that the student understands the linguistic, conceptual, and procedural components of the concept.
- Over-teach the concept, i.e., repeatedly use it in one form or another.
- Take the student to a higher level than is required on a test (the abstract), i.e., at least take the student to the application level.

Adapted from: Massachusetts Adult Basic Education Curriculum Framework, Massachusetts Department of Education, Adult and Community Learning Services, October 2005 and Mahesh C. Sharma, Handout entitled, "Learning Problems in Mathematics: Diagnostic and Remedial Perspectives."

Levels of Learning	Explanation	Example
Intuitive	At the intuitive level, new material is connected to already existing knowledge. (The teacher checks that the connection is correct.) Introduce each new fact or concept as an extension of something the student already knows.	When a student is given three-dimensional circles cut into fractional pieces, he/she intuitively begin to arrange them into complete circles, thus seeing the wedges as part of a whole. 
Concrete/ Experiential	Manipulatives are used to introduce, practice and re-enforce rules, concepts, and ideas. Present every new fact or concept through a concrete model. Encourage students to continue exploring through asking other questions. 	Using the concrete model (in this case the wedges) helps the student learn the fractional names. As the student names the pieces, the instructors asks questions such as, "How many pieces are needed to complete the circle? Yes, four, so one out of these four is one fourth of the circle. As students continue to explore they may see that two of the quarters equal half the circle.
Pictorial/ Representational	A picture, diagram, or image is used to solve a problem or prove a theorem. Sketch or illustrate a model of the new math fact. Pictorial models are those pictures often provided in textbook worksheets.	When the student has experienced how some pieces actually fit into the whole, present the relationship in a pictorial model, such as a worksheet. 
Abstract	A student is able to process symbols and formulae. Show students the new fact in symbolic (numerical) form. 	After the student has the concrete and pictorial models to relate to, he can understand that 1/4 + 1/4 is not 2/8. Until this concept has been developed, the written fraction is meaningless to the student.
Applications	The student is able to apply a previously learned concept to another topic. Ask student to apply the concept to a real-life situation. The student can now approach fractions with an understanding that each fraction is a particular part of a whole. The instructor can now introduce word problems without illustrations because students have images in their heads.	A student who is asked to give a real-life example or situation might respond with 1/4 cup of flour + 1/4 cup of flour equals 1/2 cup of flour. 
Communication	The student is able to convey knowledge to another student reflecting an embedded understanding and the highest level of learning. The student's success in this task reflects an embedded understanding and the highest level of learning.	Ask students to convey their knowledge to other students, i.e., students must translate their understanding into their own words to express what they know.

Reading Content Standards with Benchmarks
Levels 1-4, Grade Levels 0.0-8.9

R.1 Print Concepts/Phonemic Awareness/Word Analysis: The student will develop and demonstrate knowledge of print concepts and phonemic awareness, word analysis, and decoding strategies to pronounce and derive meaning of words.			
R.1.1 **Grade Level 0.0-1.9**	**R.1.2** **Grade Level 2.0-3.9**	**R.1.3** **Grade Level 4.0-5.9**	**R.1.4** **Grade Level 6.0-8.9**
R.1.1.1 Recognize the concepts of print (left to right, top to bottom, front to back, return sweep). Understand that words are separated by spaces in print. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).	R.1.2.1 Identify dipthongs (e.g., ou, aw, ay) and use to decode one-syllable words.	None at this level.	None at this level.
R.1.1.2 Recognize and discriminate among lowercase and uppercase letters and their corresponding sounds. Recognize that spoken words are represented in written language by specific sequences of letters.	R.1.2.2 Identify the schwa sound (e.g., away) and use to decode simple words.		
R.1.1.3 Identify single consonants/sounds in initial, middle, and final word positions and manipulate initial sounds to recognize, create, and use rhyming words.	R.1.2.3 Identify and use silent consonants (e.g., kn, gh).		
R.1.1.4 Identify vowels (short, long, r-controlled, and vowel combinations) and their sounds. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.	R.1.2.4 Identify words with inflectional endings (e.g., s, es, ed, ing, er, est).		
R.1.1.5 Identify two-letter consonant blends and digraphs in initial and final word positions and use these to decode one and two syllable words.	R.1.2.5 Identify and use compound words.		
R.1.1.6 Segment spoken one-syllable words into their complete sequence of individual sounds (phonemes) and then substitute individual sounds to make new words.	R.1.2.6 Identify and use contractions and be able to match them to the two words being replaced (e.g., I'm for I am).		
	R.1.2.7 Identify and know the meaning of the most common root words, prefixes, and suffixes and use them to decode multi-syllable words.		
	R.1.2.8 Use decoding strategies (letter-sound correspondences, syllabication patterns, and morphology) to read accurately unfamiliar multisyllabic words in context and out of context.		

R.2 Vocabulary: The student will develop and demonstrate knowledge of vocabulary skills that include analyzing word structure, determining the meaning of words from context, sorting words into groups by meaning and relationships among words, and applying vocabulary skills in order to understand a wide and varied vocabulary that enhances comprehension of literary, functional, and informational text.			
R.2.1 **Grade Level 0.0-1.9**	**R.2.2** **Grade Level 2.0-3.9**	**R.2.3** **Grade Level 4.0-5.9**	**R.2.4** **Grade Level 6.0-8.9**
R.2.1.1 Demonstrate ability to read personal information (name, address, zip code, phone number, age).	R.2.2.1 Recognize synonyms, antonyms, homonyms, and homophones for identified vocabulary words presented in isolation or within a group of words.	R.2.3.1 Use prefixes, suffixes, root words, antonyms, and synonyms to determine meaning of unfamiliar words.	R.2.4.1 Recognize and comprehend the meaning of moderately complex occupational, technical, and content-specific vocabulary using word, sentence, and paragraph clues to determine meaning.
R.2.1.2 Read common high-frequency words by sight (ex. the, of, to, you, she, my, is, are, do, does).	R.2.2.2 Recognize the correct meaning of words with multiple meanings when presented in text.	R.2.3.2 Identify the meaning of frequently used synonyms, antonyms, homographs, and homonyms.	R.2.4.2 Use a dictionary to locate the meaning of words used in a statement and a thesaurus to find words with the same meaning.
R.2.1.3 Identify common functional and survival signs and labels with one word or symbol.	R.2.2.3 Use structural analysis (familiar word parts: base words, prefixes, and suffixes) and/or context clues to determine the meaning of an unknown word.	R.2.3.3 Recognize and understand clipped and shortened words.	R.2.4.3 Identify and interpret basic figurative language and idioms used in everyday life and in text.
R.2.1.4 Read common numbers, symbols and abbreviations (e.g., clock time, prices, sizes, dollar sign) in isolated words and phrases in familiar contexts.		R.2.3.4 Build vocabulary of tier 2 words including general academic words and phrases.	R.2.4.4 Increase vocabulary of tier 2 words including academic terms and phrases.

R.3 Comprehension: The student will develop and demonstrate knowledge of a variety of comprehension strategies to derive meaning from literary, functional, and informational text.			
R.3.1 **Grade Level 0.0-1.9**	**R.3.2** **Grade Level 2.0-3.9**	**R.3.3** **Grade Level 4.0-5.9**	**R.3.4** **Grade Level 6.0-8.9**
R.3.1.1 Locate pertinent information in simple, familiar materials and ask and answer questions about the key details.	R.3.2.1 Locate explicitly stated information in functional reading. Ask and answer questions such as who, what, where, when, why and how to demonstrate understanding of key ideas in a text.	R.3.3.1 Identify the main idea of a text and explain how it is supported by key details; summarize the text.	R.3.4.1 Read and interpret information in common manuals and other functional readings.
R.3.1.2 Respond to instructional level text by identifying sequence and making predictions.	R.3.2.2 Respond to instructional level text by distinguishing between fact and opinion and by comparing and contrasting ideas.	R.3.3.2 Read, interpret diagrams and follow multi-step instructions in policies/procedures written at this level.	R.3.4.2 Read and interpret expository writing on common topics in newspapers, periodicals, and non-technical journals.
R.3.1.3 Interpret and follow very simple visual instructions that utilize pictures and diagrams. With prompting and support, describe the relationship between illustrations and the story in which they appear (ex. what moment in a story an illustration depicts).	R.3.2.3 Evaluate information from simple charts, graphs, labels, and payroll stubs to answer questions.	R.3.3.3 Locate pertinent information in print materials and apply it to answer a question. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	R.3.4.3 Gather information from at least three reference materials and evaluate which information best serves the student's purpose.
R.3.1.4 Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	R.3.2.4 Use text features (captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to efficiently locate key facts or information in a text.	R.3.3.4 Evaluate information from simple graphic materials such as charts, pictures, maps, signs, diagrams, tables, or graphs.	R.3.4.4 Identify the implied main idea and supporting details from an instructional-level passage.

R.3.1.5 Know and use various text features (ex. headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	R.3.2.5 Determine the sequence of events in a story and make predictions about the events.	R.3.3.5 Draw conclusions and make inferences about short passages.	R.3.4.5 Predict probable outcomes from knowledge of events obtained from a reading selection.
R.3.1.6 Closely read a text to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	R.3.2.6 Use graphic organizers to determine meaning in texts written for this instructional level.	R.3.3.6 Retell, summarize or describe sequence of events in previously read text.	R.3.4.6 Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
R.3.1.7 Demonstrate self-monitoring strategies.	R.3.2.7 Closely read a complex text at the appropriate instructional level to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	R.3.3.7 Determine the appropriate reading strategy to acquire specific information or aid comprehension.	R.3.4.7 Distinguish factual information from opinion or fiction. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
	R.3.2.8 Self monitor and clearly identify specific words or phrases that cause comprehension difficulties.		R.3.4.8 Determine the meaning of persuasive language and propaganda used in functional text.
			R.3.4.9 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
			R.3.4.10 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
			R.3.4.11 Identify and use the structural features of newspapers, magazines, and editorials to gain meaning from text.
			R.3.4.12 Clarify understanding of non-fictional passages by creating outlines, graphic organizers, logical notes, summaries, or reports.

R.4 Fluency: The student will develop and demonstrate knowledge of different reading strategies to read a variety of literary, functional, and informational text with accuracy and speed.			
R.4.1 Grade Level 0.0-1.9	**R.4.2 Grade Level 2.0-3.9**	**R.4.3 Grade Level 4.0-5.9**	**R.4.4 Grade Level 6.0-8.9**
R.4.1.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	R.4.2.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	R.4.3.1 Read instructional level text, prose, and poetry orally, with fluency and accuracy and with appropriate pacing, intonation and expression. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.	R.4.4.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.
R.4.1.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	R.4.2.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	R.4.3.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	

R.5 Literature and Informational Text: The student will develop and demonstrate knowledge of a range of increasingly complex literature and informational texts.			
R.5.1 Grade Level 0.0-1.9	**R.5.2 Grade Level 2.0-3.9**	**R.5.3 Grade Level 4.0-5.9**	**R.5.4 Grade Level 6.0-8.9**
R.5.1.1 Retell stories, including key details and main topic, and demonstrate understanding of their central message or lesson.	R.5.2.1 Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	R.5.3.1 Quotes accurately from the text when explaining what the text says explicitly and when drawing inferences from the text.	R.5.4.1 Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).
R.5.1.2 Describe characters, settings, and major events in a story, using key details. Describe the connection between two individuals, events, ideas, or pieces of information in a text.	R.5.2.2 Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	R.5.3.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text, including main ideas.	R.5.4.2 Analyze how a drama's or poem's form or structure (e.g. sonnet, soliloquy) contributes to its meaning.
R.5.1.3 Identify words and phrases in stories or poems that suggest feelings or appeal to the senses and be able to clarify the meaning of words and phrases.	R.5.2.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	R.5.3.3 Compare and contrast two or more characters, settings, or events in a story or drama drawing on specific details in the text (e.g., how characters interact). Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	R.5.4.3 Compare and contrast the experience of reading a text to experiencing an audio, video, or multimedia version of it, analyzing the text's portrayal in each medium (e.g., how the delivery of a speech affects the impact of the words).
R.5.1.4 Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	R.5.2.4 Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	R.5.3.4 Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.	R.5.4.4 Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.

R.5.1.5 Identify who is telling the story at various points in a text.	R.5.2.5 Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	R.5.3.5 Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem. Compare and contrast the organizational structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect, problem/solution) in two or more texts.	R.5.4.5 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
R.3.1.6 With support, compare and contrast the adventures and experiences of characters in familiar stories and identify major events and settings in a story.	R.5.2.6 Distinguish their own point of view from that of the characters in a story or author of a story/text.	R.5.3.6 Understand and analyze different points of view.	R.5.4.6 Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
R.5.1.7 Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	R.5.2.7 Explain how specific images and illustrations contribute to or clarify a story (e.g., create mood, emphasize particular aspects of characters or settings).	R.5.3.7 Analyze how visual and multimedia elements in conjunction with words contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction).	R.5.4.7 Analyze the structure (sentence, paragraph, chapter, or section) an author uses to organize a text including how it fits into the overall structure of a text and contributes to the development of the ideas.
R.5.1.8 Read appropriately complex informational text, prose, and poetry for current reading level.	R.5.2.8 Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series) or compare and contrast the most important points and key details presented in two texts on the same topic.	R.5.3.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence supports which point(s).	R.5.4.8 Read and comprehend literature, including stories, dramas, and poetry, as well as nonfiction, for the current level, independently and proficiently.
	R.5.2.9 Read and comprehend informational texts (historical, scientific) and literature (stories, dramas), for the current level, independently and proficiently.	R.5.3.9 Read and comprehend informational texts (historical, scientific, and technical texts) and literature (stories, dramas, and poetry), for the current level, independently and proficiently.	
		5.3.10 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	

Writing Content Standards with Benchmarks
Levels 1-4, Grade Levels 0.0-8.9

W.1 Readability/Accuracy: The student will develop and apply knowledge of the basic written English language.			
W.1.1 **Grade Level 0.0-1.9**	**W.1.2** **Grade Level 2.0-3.9**	**W.1.3** **Grade Level 4.0-5.9**	**W.1.4** **Grade Level 6.0-8.9**
W.1.1.1 Recognize and copy letters and numbers.	W.1.2.1 Write short sentences from memory and dictation.	None at this level.	None at this level.
W.1.1.2 From memory write the numerals from 0 to 20.	W.1.2.2 Recognize and copy both capital and lowercase cursive letters of the alphabet.		
W.1.1.3 From memory write the 26 uppercase and 26 lowercase letters.	W.1.2.3 Recognize and write common symbols and abbreviations.		
W.1.1.4 Write personal information and dates on a form.	W.1.2.4 Write words identifying objects in the classroom, home, or workplace.		
W.1.1.5 Accurately space words to form simple sentences.	W.1.2.5 Write short sentences from memory and dictation.		

W.2 Capitalization, Punctuation, & Spelling: The student will develop and apply knowledge of the rules for capitalization, punctuation, and spelling to complete a variety of writing tasks.			
W.2.1 **Grade Level 0.0-1.9**	**W.2.2** **Grade Level 2.0-3.9**	**W.2.3** **Grade Level 4.0-5.9**	**W.2.4** **Grade Level 6.0-8.9**
W.2.1.1 Correctly capitalize simple sentences.	W.2.2.1 Capitalize the inside address, salutation, and closing of personal and business letters.	W.2.3.1 Capitalize titles of books, magazines, poems, songs, television shows, movies, etc.	W.2.4.1 Appropriately use all forms of capitalization and punctuation including colons, semicolon, commas, dashes, and end punctuation.
W.2.1.2 Correctly capitalize the pronoun "I."	W.2.2.2 Capitalize proper nouns including days of the week, months of the year, holidays, continents, countries, states, and cities.	W.2.3.2 Correctly use commas in writing, e.g. conjunction in complex sentences, set of proper names in direct address, set off an appositive, etc.	W.2.4.2 Correctly spell all words in a written text.
W.2.1.3 Capitalize proper nouns, e.g., names, titles, places, and abbreviations.	W.2.2.3 Spell the months of the year, days of the week, and numbers from 1 to 121.		
W.2.1.4 Distinguish between declarative, imperative, interrogative, and exclamatory sentences when presented orally by the instructor.	W.2.2.4 Spell 98% of the words on the preprimer through third grade list on the Dolch word list.		
W.2.1.5 Correctly punctuate simple sentences with end punctuation including periods, question marks, and exclamation points.	W.2.2.5 Use commas to correctly punctuate items in a series, dates, and addresses.		
W.2.1.6 Correctly punctuate abbreviations of common titles.	W.2.2.6 Use commas to correctly punctuate the salutation and closing of a personal letter.		
	W.2.2.7 Use apostrophes to form contractions and show possession		

W.3 Grammatical Concepts/Sentence Structure: The student will develop and apply knowledge of grammatical concepts and sentence structure to complete a variety of writing tasks.			
W.3.1 Grade Level 0.0-1.9	**W.3.2 Grade Level 2.0-3.9**	**W.3.3 Grade Level 4.0-5.9**	**W.3.4 Grade Level 6.0-8.9**
W.3.1.1 Identify the differences between singular and plural nouns and pronouns.	W.3.2.1 Correctly indent paragraphs.	W.3.3.1 Identify complete subjects and complete predicates in sentences.	W.3.4.1 Recognize how parts of a sentence are used to manipulate meaning in sentences (independent clauses, introductory clauses, and phrases, etc.).
W.3.1.2 Use personal, possessive and infinite pronouns.	W.3.2.2 Use irregular plural forms of nouns correctly.	W.3.3.2 Identify compound subjects and predicates in sentences.	W.3.4.2 Write paragraphs with stated or implied topic sentences.
W.3.1.3 Identify the simple subject and simple predicate in a simple sentence.	W.3.2.3 Identify and use objective and demonstrative pronouns.	W.3.3.3 Identify the understood subject of a command.	W.3.4.3 Write paragraphs with clear connections and transitions between sentences.
W.3.1.4 Identify proper subject and verb agreement in a sentence.	W.3.2.4 Identify and use modifiers in sentences.	W.3.3.4 Identify phrases and independent clauses.	W.3.4.4 Develop appropriate tense use throughout a multiple paragraph text.
W.3.1.5 Write related sentences using correct capitalization, punctuation, and grammar.	W.3.2.5 Change fragments and run-ons to complete sentences.		W.3.4.5 Sustain a consistent point of view throughout a multiple paragraph text.
	W.3.2.6 Combine simple sentences to form compound sentences using commas and conjunctions.		

W.4 Parts of Speech, Verb Tense, and Usage: The student will apply knowledge of parts of speech, verb tense, and usage to complete a variety of writing tasks.			
W.4.1 Grade Level 0.0-1.9	**W.4.2 Grade Level 2.0-3.9**	**W.4.3 Grade Level 4.0-5.9**	**W.4.4 Grade Level 6.0-8.9**
W.4.1.1 Identify and distinguish between nouns, pronouns, and verbs in simple sentences.	W.4.2.1 Correctly identify the singular and plural forms of nouns.	W.4.3.1 Identify nouns, verbs, pronouns, adjectives, adverbs, conjunctions, prepositions, and interjections.	W.4.4.1 Identify all parts of speech, including nouns, verbs, adjectives, adverbs, conjunctions, prepositions, interjections, and verbals (verbs used as nouns, adjectives, or adverbs such as infinitives, participles, and gerunds).
W.4.1.2 Distinguish between past and present tense in sentences.	W.4.2.2 Distinguish between correct use of verbs in affirmative and negative forms in simple sentences.	W.4.3.2 Write the appropriate forms of common regular and irregular verbs, past, present, and past participle.	W.4.4.2 Identify how parts of speech work in a particular sentence, i.e., noun used as an object instead of a subject.
W.4.1.3 Compose simple sentences in both present and past tense.	W.4.2.3 Identify the appropriate forms of common regular and irregular verbs.	W.4.3.3 Distinguish present tense, past tense, and future tense of common verbs.	W.4.4.3 Identify passive voice.
	W.4.2.4 Make pronouns and antecedents agree in number and gender.	W.4.3.4 Correctly use the nominative and objective cases of pronouns, i.e., she/her.	W.4.4.4 Demonstrate mastery of past and present tense.
			W.4.4.5 Establish and maintain tense in a writing piece.

W.5 Composition: The student will develop and apply the writing process to communicate in writing for a variety of purposes.			
W.5.1 **Grade Level 0.0-1.9**	**W.5.2** **Grade Level 2.0-3.9**	**W.5.3** **Grade Level 4.0-5.9**	**W.5.4** **Grade Level 6.0-8.9**
W.5.1.1 Use a combination of drawing, dictating, and writing to compose informative or explanatory texts in which they name a topic, provide some facts, and provide some sense of closure.	W.5.2.1 Write informative or explanatory text in which they introduce a topic, use facts and definitions to develop points, use linking words and phrases to connect ideas with categories of information, and provide a concluding statement or section.	W.5.3.1 Write informative and explanatory texts to examine a topic and convey ideas and information clearly. The text should: a) Introduce the topic clearly, group related information in paragraphs and sections, and include formatting, illustrations and multimedia when useful to aid comprehension; b) Develop the topic with facts, definitions, concrete details, quotations, or other information and examples; c) Link ideas within categories of information using words and phrases (e.g., another, for example, also, because) and use precise language and domain-specific vocabulary to inform about or explain the topic; and d) Provide a concluding statement or section related to the information/explanation presented.	W.5.4.1 Write informative and explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. The texts should: a) Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect, include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aid comprehension; b) Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples; c) Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts; d) Use precise language and domain-specific vocabulary to inform about or explain the topic. e) Establish and maintain style; and f) Provide a concluding statement or section that follows from and supports the information or explanation presented.
W.5.1.2 Use a combination of drawing, dictating, and writing to narrate an event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.	W.5.2.2 Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.	W.5.3.2 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear even sequences. The narratives should: a) Orient the reader by establishing a situation and introducing a narrator and/or characters and organize an event sequence that unfolds naturally; b) Use dialogue and description to develop experiences and events or show the responses of characters to situations; c) Use a variety of transitional	W.5.4.2 Write arguments to support claims with clear reasons and relevant evidence. The argument should: a) Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically; b) Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text; c) Use words, phrases, and clauses to create cohesion and clarify the relationships

		words and phrases to manage the sequence of events; d) Use concrete words and phrases and sensory details to convey experiences and events precisely; and e) Provide a conclusion that follows from the narrated experiences or events.	among claim(s), reasons, and evidence; d) Establish and maintain a formal style; and e) Provide a concluding statement or section that follows from and supports the argument presented.
W.5.1.3 Focus on a topic, respond to questions and suggestions from peers and add details to strengthen writing as needed.	W.5.2.3 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons and provide a concluding statement for section.	W.5.3.3 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. The pieces should: a) Introduce a topic or text, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose; b) Provide logical reasons that are supported by facts/details; c) Link opinion and reasons using words, clauses, and phrases (e.g., for instance, in order to, in addition, consequently, specifically); and d) Provide a concluding statement or section related to the opinion presented.	W.5.4.3 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
W.5.1.4 Recall information from experiences or gather information from provided sources to answer a question.	W.5.2.4 Gather information from print and digital resources; take brief notes on sources and sort evidence into provided categories.	W.5.3.4 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.	W.5.4.4 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.5.1.5 Use a variety of digital tools to produce and publish writing, including in collaboration with peers.	W.5.2.5 Use technology to produce and publish writing as well as interact and collaborate with others.	W.5.3.5 Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	W.5.4.5 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
	W.5.2.6 Conduct short research projects that build knowledge about a topic.	W.5.3.6 Conduct short research projects that use several sources to build knowledge through investigation or different aspects of a topic.	W.5.4.6 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

	W.5.2.7 Produce writing in which the development and organization are appropriate to task and purpose.	W.5.3.7 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.	W.5.4.7 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
	W.5.2.8 Develop and strengthen writing as needed by planning, revising, and editing.	W.5.3.8 Draw evidence from literary or information texts to support analysis, reflection, and research. The evidence should: a) Compare and contract two or more characters, settings, or events in a story or a drama, drawing on specific details in the text (e.g., how the characters interacted); b) Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which points(s);	W.5.4.8 Draw evidence from literary or informational texts to support analysis, reflection, and research by applying reading standards to literature and literary nonfiction.
		5.3.9 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	

Speaking and Listening Content Standards with Benchmarks
Levels 1-4, Grade Levels 0.0-8.9

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.			
S.1.1 **Grade Level 0.0-1.9**	**S.1.2** **Grade Level 2.0-3.9**	**S.1.3** **Grade Level 4.0-5.9**	**S.1.4** **Grade Level 6.0-8.9**
S.1.1.1 Participate in collaborative conversations in small and larger groups.	S.1.2.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.	S.1.3.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups), building on others' ideas and expressing their own clearly.	S.1.4.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.
S.1.1.2 Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).	S.1.2.2 Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).	S.1.3.2 Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	S.1.4.2 Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence to probe and reflect on ideas under discussion.
S.1.1.3 Build on others' talk in conversations by responding to the comments of others through multiple exchanges.	S.1.2.3 Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.	S.1.3.3 Follow agreed-upon rules for discussions and carry out assigned roles.	S.1.4.3 Work with peers to set rules for discussions.
S.1.1.4 Ask questions to clear up any confusion about the topics and texts under discussion.	S.1.2.4 Explain their own ideas and understanding in light of the discussion	S.1.3.4 Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.	S.1.4.4 Pose questions that connect the ideas of several speakers and elicit elaboration. Respond to others' questions and comments with relevant evidence, observations, and ideas.
S.1.1.5 Demonstrate understanding of written texts presented orally by asking and answering questions about key details and restating key elements.	S.1.2.5 Identify the main ideas and supporting details of written texts read aloud or information presented graphically, orally, visually, or multimodally.	S.1.3.5 Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.	S.1.4.5 Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
S.1.1.6 Ask and answer questions about what a speaker says in order to seek help, gather additional information or clarify something that is not understood.	S.1.2.6 Ask and answer questions about what a speaker says to clarify comprehension, gather additional information, or deepen understanding. Offer appropriate elaboration and detail about what a speaker says.	S.1.3.6 Summarize written texts read aloud or information presented graphically, orally, visually, or multimodally.	S.1.4.6 Analyze the main ideas and supporting details to determine the purpose of information in graphical, oral, visual, or multimodal formats; evaluate the motives (e.g., social, commercial, political) behind its presentation.
		S.1.3.7 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.	S.1.4.7 Delineate a speaker's argument and specific claims, evaluating the validity of the reasoning and sufficiency of the evidence.

S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.			
S.2.1 **Grade Level 0.0-1.9**	**S.2.2** **Grade Level 2.0-3.9**	**S.2.3** **Grade Level 4.0-5.9**	**S.2.4** **Grade Level 6.0-8.9**
S.2.1.1 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	S.2.2.1 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	S.2.3.1 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	S.2.4.1 Present claims and findings, emphasizing important points in a focused, coherent manner with relevant evidence, sound reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
S.2.1.2 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	S.2.2.2 Create engaging audio recordings of stories or poems that demonstrate fluent reading; add visual displays when appropriate to enhance certain facts or details.	S.2.3.2 Use multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.	S.2.4.2 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
S.2.1.3 Speak audibly and express thoughts, feelings, and ideas clearly. Produce complete sentences appropriate to task and situation.	S.2.2.3 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	S.2.3.3 Know contexts that call for formal (e.g., presenting ideas) versus informal (e.g., small-group discussion) English; use formal English when appropriate.	S.2.4.3 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

M.1 Number Sense and Operations: Students will develop and apply concepts of number sense and operations to explore, analyze, and solve a variety of mathematical and real-life problems			
M.1.1 **Grade Level 0.0-1.9**	**M.1.2** **Grade Level 2.0-3.9**	**M.1.3** **Grade Level 4.0-5.9**	**M.1.4** **Grade Level 6.0-8.9**
M.1.1.1 Understand place value. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following special cases: a. 10 can be thought of as a bundle of ten ones – called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, … eight, or nine ones. The numbers 10, 20, 30, 40, 50, 60, 70, 80 90 refer to one, two three, four, five, six, seven, eight, or nine tens (and 0 ones).	M.1.2.1 Understand that the three digits of a three-digit number represents amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following special cases: a. 100 can be thought of as a bundle of ten tens – called a "hundred." **b.** The numbers 100, 200, … 900 refer to one, two, … nine hundreds (and 0 tens and 0 ones).	M.1.3.1 Generalize place value understanding for multi-digit whole numbers. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right and 1/10 of what it represents in the place to its left.	M.1.4.1 Fluently add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. [Note: Applications involving financial literacy should be used.]
M.1.1.2 Understand place value. Compare two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	M.1.2.2 Count within 1000; skip-count by 5s, 10s, and 100s.	M.1.3.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	M.1.4.2 Compute fluently with multi-digit numbers and find common factors and multiples. Fluently divide multi-digit numbers using the standard algorithm.
M.1.1.3 Use place value understanding and the properties of operations to add and subtract. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	M.1.2.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	M.1.3.3 Use place value understanding to round multi-digit whole numbers to any place.	M.1.4.3 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factors.

M.1.1.4 Use properties of operations to add and subtract. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range of 10-9 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	M.1.2.4 Compare two three-digit numbers based on meanings of hundreds, tens, and ones digits, using >, =, < symbols to record the results of comparisons.	M.1.3.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	M.1.4.4 Apply and extend previous understandings of numbers to the system of rational numbers. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
	M.1.2.5 Add up to four two-digit numbers using strategies based on place value and properties of operations.	M.1.3.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	M.1.4.5 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(– 3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

	M.1.2.6 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, and ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	M.1.3.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	M.1.4.6 Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. d. Distinguish comparisons of absolute value from statements about order.
	M.1.2.7 Use place value understanding and properties of operations to add and subtract. Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.	M.1.3.7 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	M.1.4.7 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

	M.1.2.8 Use place value understanding and properties of operations to add and subtract. Explain why addition and subtraction strategies work, using place value and the properties of operations.	M.1.3.8 Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.) b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	M.1.4.8 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. b. Understand $p + q$ as the number located a distance $\lvert q \rvert$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + – q$) . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. Apply properties of operations as strategies to add and subtract rational numbers.
	M.1.2.9 Use place value understanding and properties of operations to perform multi-digit arithmetic. a. Use place value understanding to round whole numbers to the nearest 10 or 100. b. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction.	M.1.3.9 Use place value understanding to round decimals to any place.	M.1.4.9 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not 0, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, $–(p/q) = (– p)/q = p/(q)$. Interpret quotients

			of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
	M.1.2.10 Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations	M.1.3.10 Perform operations with multi-digit whole numbers and with decimals to hundredths. Fluently multiply multi-digit whole numbers using the standard algorithm.	M.1.4.10 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
	M.1.2.11 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	M.1.3.11 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	M.1.4.11 Solve real-world and mathematical problems involving the four operations with rational numbers.
	M.1.2.12 Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	M.1.3.12 Extend understanding of fraction equivalence and ordering. Explain why *a* fraction *a* / *b* is equivalent to a fraction (*n* x *a*) (*n x b*) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	M.1.4.12 Know that there are numbers that are not rational, and approximate them by rational numbers. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π 2).

	M.1.2.13 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on the number line. b. Recognize and generate simple equivalent fractions. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions.	M.1.3.13 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1 / 2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	M.1.3.13 Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$.
		M.1.3.14 Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers. Understand a fraction a / b with $a > 1$ as a sum of fractions 1 / b. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.	M.1.4.14 Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. c. Find a percent of a quantity as a rate per 100, solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

		M.1.3.15 Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	M.1.4.15 Analyze proportional relationships and use them to solve real-world and mathematical problems. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
		M.1.3.16 Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	M.1.4.16 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. d. Explain what a point *(x, y)* on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r)* where *r* is the unit rate.
		M.1.3.17 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a* / *b* as a multiple of 1 / *b*. b. Understand a multiple of *a* / *b* as a multiple of 1 / *b*, and use this understanding to multiply a fraction by a whole number. c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.	M.1.4.17 Use proportional relationships to solve multistep ratio and percent problems.
		M.1.3.18 Understand decimal notation for fractions, and compare decimal fractions. Use decimal notation for fractions with denominators 10 or 100.	

		M.1.3.19 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	
		M.1.3.20 Use equivalent fractions as strategy to add and subtract fractions. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	
		M.1.3.21 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	
		M.1.3.22 Apply and extend previous understanding of multiplication and division to multiply and divide fractions. Interpret a fraction as division of the numerator by the denominator ($a / b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	

		M.1.3.23 Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a)/(n×b) to the effect of multiplying a/b by 1.	
		M.1.3.24 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	
		M.1.3.25 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. b. Interpret division of a whole number by a unit fraction, and compute such quotients. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.	

M.2 Measurement: Students will develop and apply concepts of standard measurements and use measurement tools to explore, analyze, and solve mathematical and real-life problems.			
M.2.1 **Grade Level 0.0-1.9**	**M.2.2** **Grade Level 2.0-3.9**	**M.2.3** **Grade Level 4.0-5.9**	**M.2.4** **Grade Level 6.0-8.9**
M.2.1.1 Measure lengths indirectly and by iterating length units. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.	M.2.2.1 Measure and estimate lengths in standard units. Estimate length units using units of inches, feet, centimeters, and meters. Measure to determine how much longer one object is than another, expressing the length difference in terms of standard length unit.	M.2.3.1 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	M.2.4.1 Geometric measurement: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. b. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.
M.2.1.2 Measure the length of an object twice, using length units of different lengths for the two measurements and describe how the two measurements relate to the size of the unit chosen.	M.2.2.2 Relate addition and subtraction to length. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1,, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.	M.2.3.2 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	M.2.4.2 Measure common three-dimensional shapes (e.g., a room, window, box, etc.) and represent the information as a scale drawing. Interpret and use scale drawings to solve real world and mathematical problems.
	M.2.2.3 Solve problems involving measurement and estimation of intervals of time. Tell and write time to the nearest minute and measure time intervals in minutes.	M.2.3.3 Convert like measurement units within a given measurement system. Convert among different-sized standard measurement units within a given measurements system and use these conversions in solving multi-step, real world and mathematical problems.	M.2.4.3 Calculate the perimeter and area of basic irregular or composite shapes, i.e., shapes formed by a combination of rectangles and triangles using formulas provided.
	M.2.2.4 Solve problems involving measurement and estimation of liquid volumes and masses of objects. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilogram (kg), and liters (l). Add, subtract, multiply or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker	M.2.3.4 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms	

	with a measurement scale) to represent the problem.	of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	
	M.2.2.5 Geometric measurement: Understand concepts of area and relate to area of multiplication and addition. Recognize area as an attribute of plan figures and understand concepts of area measurement. a. A square with a side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. c. Measure areas by counting unit squares (square cm, square m, square ft and improvised units).	M.2.3.5 Geometric measurement: Understand concepts of angle and measure angles. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the pints where the two rays intersect the circle. An angle that turns thorugh 1/360 of a circle is called a "one-degree angle" and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. c. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	
	M.2.2.6 Geometric measurement: Relate area to the operations of multiplication and addition. a. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. b. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b+c is the sum of a x b and a x c. Use area models to represent the distributive property of mathematical reasoning.	M.2.3.6 Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. c. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	
	M.2.2.7 Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. Solve real world and mathematical problems		

	involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.		

M.3 Geometry: Students will develop and apply concepts of geometric properties, relationships, and methods to explore, analyze, and solve mathematical and real-life problems.			
M.3.1 **Grade Level 0.0-1.9**	**M.3.2** **Grade Level 2.0-3.9**	**M.3.3** **Grade Level 4.0-5.9**	**M.3.4** **Grade Level 6.0-8.9**
M.3.1.1 Analyze, compare, create, and compose shapes. Analyze and compare two- and three-dimensional shapes, in different sizes and orientation, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/ "corners") and other attributes (e.g., having sides of equal length).	M.3.2.1 Reason with shapes and their attributes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	M.3.3.1 Draw and identify lines and angles, and classify shapes by properties of their lines and angles. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	M.3.4.1 Draw, construct and describe geometrical figures and describe the relationships between them. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
M.3.1.2 Reason with shapes and their attributes. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	M.3.2.2 Reason with shapes and their attributes. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of, etc,* and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	M.3.3.2 Graph points on the coordinate plane to solve real-world and mathematical problems. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	M.3.4.2 Solve real-world and mathematical problems involving angle, measure, area, surface area, and volume. a. Know the formulas for the area and circumference of a circle and use them to solve problems; given an informal derivation of the relationship between the circumference and area of a circle. b. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. c. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
	M.3.2.3 Reason with shapes and their attributes. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	M.3.3.3 Classify two-dimensional figures into categories based on their properties. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	M.3.4.3 Understand congruence and similarity using physical models, transparencies, or geometry software. a. Understand that a two-dimensional figure is congruent to another if the

			second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two congruent figures, describe a sequence that exhibits the congruence between them. b. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. c. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
	M.3.2.4 Reason with shapes and their attributes. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	M.3.3.4 Solve real world and mathematical problems involving area, surface area, and volume. a. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. b. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. c. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	M.3.4.4 Understand and apply the Pythagorean Theorem to find the distance between two points in a coordinate system and to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

M.4 Data Analysis, Statistics, and Probability: Students will develop and apply concepts of data analysis, statistics, and probability to explore, analyze, and solve mathematical and real-life problems.			
M.4.1 **Grade Level 0.0-1.9**	**M.4.2** **Grade Level 2.0-3.9**	**M.4.3** **Grade Level 4.0-5.9**	**M.4.4** **Grade Level 6.0-8.9**
M.4.1.1 Identify and name various simple visual data (graphs, charts, tables) found in authentic publications.	M.4.2.1 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories.	M.4.3.1 Develop understanding of statistical variability. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	M.4.4.1 Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurements. c. Giving quantitative measures of center (median and/or mean) variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distributions and the context in which the data was gathered.
M.4.1.2 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than another.	M.4.2.2 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.	M.4.3.2 Develop understanding of statistical variability. Understand that a set of data collected to answer statistical questions has a distribution which can be described by its center, spread, and overall shape and recognize that a measure of variation describes how its values vary with a single number.	M.4.4.2 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a change process.
	M.4.2.3 Solve one- and two-step problems “how many more” and “how many less” problems using information presented in scaled bar graphs.	M.4.3.3 Summarize and describe distributions. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	M.4.4.3 Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Represent sample spaces for compound events using methods such as lists,

			tables and tree diagrams.
		M.4.3.4 Represent and Interpret data. Make a line plot to display a data set including data sets involving fractions. Solve problems involving information presented in line plots.	M.4.4.4 Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. a. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. b. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.
		M.4.3.5 Investigate chance processes. Develop an understanding of events as certain, impossible, likely, or unlikely to occur. Understand that probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.	M.4.4.5 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for row or columns to describe possible association between two variables.
		M.4.3.6 Investigate chance processes. Determine the probability of basic events (e.g., in the results of tossing a coin, rolling a die, or drawing cards from a deck of cards, chance of baby being born on a certain day of week, etc.) and express the likelihood of an occurrence as a ratio, fraction, or percent.	M.4.4.6 Use random sampling to draw inferences about a population. a. Understand that statistics can be used to gain information about a population by examining a sample of the population. Understand that random sampling tends to produce representative samples and support valid inferences. b. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to

			gauge the variation in estimates or predictions.
			M.4.4.7 Draw informal comparative inferences about two populations. a. Informally assess the degree of visual overlap of two numerical data distributions with similar variability, measuring the difference between the centers by expressing it as a multiple of a measure of variability. b. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

M.5 Algebraic Thinking: Students will develop and apply concepts of basic algebra, patterns, relationships, expressions, equations, and functions to explore, analyze, and solve mathematical and real-life problems.			
M.5.1 **Grade Level 0.0-1.9**	**M.5.2** **Grade Level 2.0-3.9**	**M.5.3** **Grade Level 4.0-5.9**	**M.5.4** **Grade Level 6.0-8.9**
M.5.1.1 Understand and apply properties of operations and the relationship between addition and subtraction. Apply properties of operations as strategies to add and subtract.	M.5.2.1 Represent and solve problems involving addition and subtraction. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, wit unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	M.5.3.1 Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	M.5.4.1 Use properties of operations to generate equivalent expressions. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
M.5.1.2 Understand subtraction as an unknown-addend problem.	M.5.2.2 Represent and solve problems involving multiplication and division. *a.* Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. b. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.	M.5.3.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	M.5.4.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

M.5.1.3 Add and subtract with 20. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). Add and subtract within 20, demonstrating fluency for addition and subtraction with 10. Use strategies such as counting on: making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	M.5.2.3 Multiply and divide within 100. a. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. Know from memory all products of two one-digit numbers. b. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	M.5.3.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	M.5.4.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
M.5.1.4 Work with addition and subtraction. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.	M.5.2.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	M.5.3.4 Gain familiarity with factors and multiples. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors.	M.5.4.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p (x + q) r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
M.5.1.5 Work with addition and subtraction. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.	M.5.2.5 Understand properties of multiplication and the relationship between multiplication and division. Apply properties of operations as strategies to multiply and divide. Note: Students need not use formal terms for these properties.	M.5.3.5 Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	M.5.4.5 Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions.

M.5.1.6 Represent and solve problems involving addition and subtraction. Solve word problems that call for addition and subtraction of whole numbers less than or equal to 20. Apply commutative property of addition and associative property of addition to add. Understand subtraction as an unknown-addend problem.	M.5.2.6 Understand division as an unknown-factor problem.	M.5.3.6 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.	M.5.4.6 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √ 2 is irrational.
	M.5.2.7 Solve problems involving the four operations, and identify and explain patterns in arithmetic. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	M.5.3.7 Write and interpret numerical expressions. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	M.5.4.7 Use scientific notation. a. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
	M.5.2.8 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.	M.5.3.8 Apply and extend previous understandings of arithmetic to algebraic expressions. Write and evaluate numerical expressions involving whole-number exponents, i.e., $4(4) = 4^2 = 16$ and $2(2)(2) = 2^3 = 8$. Understand that exponents are used to represent repeated multiplication.	M.5.4.8 Understand the connections between proportional relationships, lines, and linear equations. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
		M.5.3.9 Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. c. Evaluate expressions at specific values of their variables. Include expressions that arise from	M.5.4.9 Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including

		formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	equations whose solutions require expanding expressions using the distributive property and collecting like terms.
		M.5.3.10 Apply the properties of operations to generate equivalent expressions.	M.5.4.10 Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. See example.
		M.5.3.11 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	M.5.4.11 Define, evaluate, and compare functions. a. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. b. Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
		M.5.3.12 Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	M.5.4.12 Use functions to model relationships between quantities. a. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and

			in terms of its graph or a table of values. b. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
		M.5.3.13 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	
		M.5.3.14 Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q, and x are all nonnegative rational numbers.	
		M.5.3.15 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	
		M.5.3.16 Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real world problem that change in relationship to one another; write an equation to express a quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	

T.1 Technology & Society: The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.			
T.1.1 **Grade Level 0.0-1.9**	**T.1.2** **Grade Level 2.0-3.9**	**T.1.3** **Grade Level 4.0-5.9**	**T.1.4** **Grade Level 6.0-8.9**
T.1.1.1 Identify the computer as a machine that helps people communicate, work, and play.	T.1.2.1 Recognize and discuss the rights of ownership of computer-created and online work.	T.1.3.1 Recognize, discuss, and use terms and concepts related to networks and protection of computers, networks, and information.	T.1.4.1 Recognize, discuss, and use multi-tasking concepts.
T.1.1.2 Recognize, discuss, and model correct use of common computer terms.	T.1.2.2 Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.	T.1.3.2 Investigate, recognize, and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.	T.1.4.2 Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.
T.1.1.3 Identify and discuss common features and functions of computer software and devices.	T.1.2.3 Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.	T.1.3.3 Identify and discuss the benefits of non-networked and networked computers.	
T.1.1.4 Identify and discuss correct and responsible use and care of technology resources.	T.1.2.4 Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media, especially as related to use during class and for class projects and assignments.		
T.1.1.5 Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and society in general.			
T.1.1.6 Investigate computer/technology-related careers and occupations from the past, present, and future.			
T.1.1.7 Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.			

T.2 Databases: The student will demonstrate an understanding of databases and ability to create databases.			
T.2.1 **Grade Level 0.0-1.9**	**T.2.2** **Grade Level 2.0-3.9**	**T.2.3** **Grade Level 4.0-5.9**	**T.2.4** **Grade Level 6.0-8.9**
T.2.1.1 Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.	T.2.2.1 Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).	T.2.3.1 Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.	T.2.4.1 Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.
T.2.1.2 Identify and discuss how and why databases are used in an information-intensive society [e.g., in education, government, business, community (grocery, pharmacy, and home)].	T.2.2.2 Use prepared databases to sort alphabetically/numerically in ascending/descending order.	T.2.3.2 Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.	T.2.4.2 Plan and develop a simple database to enter, edit, collect, organize, and display data.
T.2.1.3 Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.	T.2.2.3 Modify prepared databases to enter/edit additional information and cite the source.		T.2.4.3 Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.
	T.2.2.4 Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, web pages).		T.2.4.4 Plan and develop database reports to organize data, create reports, and present findings, citing sources.
			T.2.4.5 Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.

T.3 Spreadsheets: The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.			
T.3.1 **Grade Level 0.0-1.9**	**T.3.2** **Grade Level 2.0-3.9**	**T.3.3** **Grade Level 4.0-5.9**	**T.3.4** **Grade Level 6.0-8.9**
T.3.1.1 Identify spreadsheets as a tool for organizing information.	T.3.2.1 Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.	T.3.3.1Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.	T.3.4.1 Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.

T.3.1.2 Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, communications, transportation, mathematics, science).	T.3.2.2 Use spreadsheet software to enter, display, and identify types (text and numeric) of data.	T.3.3.2 Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.	T.3.4.2 Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., word processing, multimedia, and web pages), citing sources.
T.3.1.3 Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, etc.)	T.3.2.3 Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.		

T.4 Desktop Publishing: The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.			
T.4.1 **Grade Level 0.0-1.9**	**T.4.2** **Grade Level 2.0-3.9**	**T.4.3** **Grade Level 4.0-5.9**	**T.4.4** **Grade Level 6.0-8.9**
T.4.1.1 Identify basic word processing terms.	T.4.2.1. Recognize and explain the advantages and disadvantages of using word processing to create documents.	T.4.3.1 Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.	T.4.4.1 Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions (e.g., minimize document, resize document, toggle between two open documents on the desktop, columns, tables, headers/footers, and using multiple files and/or applications) to develop (e.g., design, format, layout), edit/revise, and publish documents for a specific audience and purpose.
T.4.1.2 Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert, enter/return, backspace, delete) on the keyboard.	T.4.2.2 Identify, discuss, and use word processing as a tool to open, edit, print, and save documents.	T.4.3.2 Recognize and use menu and tool bar features to edit and make corrections to documents.	T.4.4.2 Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.
T.4.1.3 Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.	T.4.2.3 Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, and spell check).	T.4.3.3 Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.	T.4.4.3 Demonstrate appropriate use of copyrighted materials in word processing documents.
T.4.1.4 With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.	T.4.2.4 Use the formatting toolbar to format and change the appearance of word processing documents.	T.4.3.4 Identify, discuss, and use WP/DTP menu and tool bar terms and concepts (e.g., import, portrait, landscape, copy and paste between two documents, clipboard) to describe documents.	T.4.4.4 Use instructor-prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.
T.4.1.5 Demonstrate correct finger placement for home row keys.	T.4.2.5 Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories.	T.4.3.5 Select and use WP/DTP menu and tool bar features to revise and change existing documents.	T.4.4.5 Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.

T.5 Multimedia: The student will demonstrate an understanding of multimedia and the ability to create multimedia presentations.			
T.5.1 Grade Level 0.0-1.9	**T.5.2 Grade Level 2.0-3.9**	**T.5.3 Grade Level 4.0-5.9**	**T.5.4 Grade Level 6.0-8.9**
T.5.1.1 Identify and discuss components of multimedia.	T.5.2.1 Identify, discuss, and use common multimedia terms and concepts.	T.5.3.1 Identify, discuss, and cite various types of resources.	T.5.4.1 Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.
T.5.1.2 Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.	T.5.2.2 Identify and discuss issues (e.g., personal information, images, content, language, and, appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.	T.5.3.2 Modify an existing multimedia story to include student narration.	T.5.4.2 Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.
T.5.1.3 Recognize and explain the advantages and disadvantages of using multimedia to develop products.	T.5.2.3 Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.	T.5.3.3 Use storyboards, menus, and branching to modify or create non-linear products, citing sources.	T.5.4.3 Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.
	T.5.2.4 Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, and websites) to entertain, sell, and influence ideas and opinions.		T.5.4.4 Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).

T.6: Internet and Telecommunications: The student will demonstrate an ability to utilize Internet and other telecommunication resources.			
T.6.1 Grade Level 0.0-1.9	**T.6.2 Grade Level 2.0-3.9**	**T.6.3 Grade Level 4.0-5.9**	**T.6.4 Grade Level 6.0-8.9**
T.6.1.1 Identify and discuss the Internet as a source of information at school and home.	T.6.2.1 identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, World Wide Web, digital information, URL, keyword, search engine, navigation, resources, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.	T.6.3.1 Plan, discuss, and use search strategies with two or more criteria to find information online.	T.6.4.1 Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks (e.g., password, firewalls, Spam, security, Fair Use, AUP/IUP's, IP address, Intranet, private networks, discussion forum, threaded discussion, LANS, WANs, netiquette, child predators, scammers, hackers.

T.6.1.2 Discuss the origin of the Internet.	T.6.2.2 Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.	T.6.3.2 Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.	T.6.4.2 Select and justify use of appropriate collaborative tools (e.g., surveys, email, discussion forums, web pages, wikis, online videoconferencing, documents, etc.) to survey, collect, share, present, and communicate information for the intended audience and purpose.
T.6.1.3 Explore Internet resources and information and discuss the variety and types of information found.	T.6.2.3 Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).	T.6.3.3 Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.	T.6.4.3 Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.
T.6.1.4 Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.	T.6.2.4 Use Internet resources to locate information, then discuss and compare findings for usefulness.	T.6.3.4 Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communication.	T.6.4.4 Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.
	T.6.2.5 Cite sources of information (print and non-print) for a project.		

Reading Benchmarks, Performance Indicators, and Sample Activities with Real-life Application

Level 1 – Grade Level 0-1.9

R.1 Print Concepts/Phonemic Awareness/Word Analysis: The student will develop and demonstrate knowledge of print concepts and phonemic awareness, word analysis, and decoding strategies to pronounce and derive meaning of words.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.1.1.1 Recognize the concepts of print (left to right, top to bottom, front to back, return sweep). Understand that words are separated by spaces in print. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).	Follow a few very simple sentences with familiar learned words and point to each word as it is read; demonstrating movement from left to right and top to bottom; and movement from the end of a line to the beginning of the next (return sweep) with continuation on the back of the page.	Have students type their name over and over on the computer so that they will see the movement from left to right and the return sweep. Have students connect dots under letters from left to right and then next line.
R.1.1.2 Recognize and discriminate among lowercase and uppercase letters and their corresponding sounds. Recognize that spoken words are represented in written language by specific sequences of letters.	Look at a list with a mixture of at least twenty lowercase and uppercase manuscript letters of the alphabet that are not in alphabetical order, say the names of the letters for your instructor and indicate the sounds the letters make.	Assign a letter to each student and have them do a scavenger hunt in the classroom to find words that contain that letter or objects that begin with that letter.
R.1.1.3 Identify single consonants/sounds in initial, middle, and final word positions and manipulate initial sounds to recognize, create, and use rhyming words.	Identify the single consonants/sounds in initial, medial, and the final word positions of ten or more words and then listen to at least ten words and make two rhyming words for each.	Scattergories Game: Choose a consonant. Devise five questions (a boy's name, name a food, name a state, name a color, name a day of the week). Pair students and give five minutes for the students to name as many of the selected items that begin with the consonant. Each team who comes up with an answer that no one else has gets a point. Have students make three word sentences with each word in the sentence beginning with the same letter, i.e., Bob builds boats.
R.1.1.4 Identify vowels (short, long, r-controlled, and vowel combinations) and their sounds. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.	Use pictures and/or words to identify the five short vowel sounds, the five long vowel sounds, at least three "r-controlled" vowel sounds (ur, ar, er, ir, or) and three vowel combinations(ai, ea, ee).	Let each student say their name and then write it on the board, then the other students identify vowels in the name and whether they are long, short, or r-controlled vowel sounds. http://www.sadlier-oxford.com/phonics/student.cfm Under grades 1-2 click on ***Long Vowel Sounds, Short Vowel Sounds***, ***Long Vowel Sounds e and u,*** and ***Short or Long Vowel Words.*** Make cards with an opening to slide a vowel strip through to complete one-syllable words with long vowel sounds.
R.1.1.5 Identify two-letter consonant blends and digraphs in initial and final word positions and use these to decode one and two syllable words.	Identify the two-letter consonant blends (br-, sp-, cl-, -nd, -sk) and digraphs (ch, sh, th, wh) in the initial and/or final word positions and use them to read the words orally.	Write real-life words with consonant blends and digraphs. Have students highlight the consonant blends and digraphs that they find and then say the word.
R.1.1.6 Segment spoken one-syllable words into their complete sequence of individual sounds (phonemes) and then substitute individual sounds to make new words.	From a list of ten original words, student forms at least two new words from each by adding or substituting individual sounds.	Using index cards, have student write original word and new words on individual cards. Students would use these cards to form sentences with each "group" of words. Use above index cards to place new words and original word in alphabetical order.

R.2 Vocabulary: The student will develop and demonstrate knowledge of vocabulary skills that include analyzing word structure, determining the meaning of words from context, sorting words into groups by meaning and relationships among words, and applying vocabulary skills in order to understand a wide and varied vocabulary that enhances comprehension of literary, functional, and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.2.1.1 Demonstrate ability to read personal information (name, address, zip code, phone number, age).	Read personal information labels (name, address, zip code, phone number, age, etc.) and match to own personal information.	Collect an assortment of mail. Let students identify who the mail is from, where they are located, who the mail is addressed to, and where they are located. Have students complete simple applications or forms, i.e., drivers license, library card, social security card, doctor's office, etc., for practice filling in personal information. Have students choose their personal information from a list of examples.
R.2.1.2 Read common high-frequency words by sight (ex. the, of, to, you, she, my, is, are, do, does).	Read a minimum of 80% of twenty-five or more sight words from an appropriate level word list (e.g., 100 most frequently used words).	Have students mark sight words they find in a newspaper or magazine article. Have students play a matching game where they also have to pronounce the words as they turn them over. Have students construct words using letter tiles as the instructor calls each word.
R.2.1.3 Identify common functional and survival signs and labels with one word or symbol.	Identify a graphic of ten or more common functional signs, survival signs, and labels with one word or symbol (e.g., danger, hospital, restroom, poison).	Play Pictionary with functional and survival signs. Put the symbol and the sign on an index card (put all cards face down). Have a student choose a card and draw it for the others to guess. Take students on a "field trip" to identify common signs and labels with one word or symbol and take a picture to use later in matching worksheets, games, and classroom activities.
R.2.1.4 Read common numbers, symbols and abbreviations (e.g., clock time, prices, sizes, dollar sign) in isolated words and phrases in familiar contexts.	Read twenty-five or more written numbers, symbols, and abbreviations (one, two), clock time, prices, sizes, and isolated words and phrases in familiar contexts (e.g., traffic signs, store ads, clothing, tags, fast food menus).	Have students go out into the community or in their home and find symbols and abbreviations to bring back and share with the class. Have students make a comprehensive list of the abbreviations and symbols they found. Make a notebook of symbols using a digital camera to take pictures of symbols/abbreviations found in the community. Include the picture, the abbreviation and the full word.

R.3 Comprehension: The student will develop and demonstrate knowledge of a variety of comprehension strategies to derive meaning from literary, functional, and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.3.1.1 Locate pertinent information in simple, familiar materials and ask and answer questions about the key details.	Locate pertinent information in two or more simple materials (e.g., want ads, job listings, schedules, signs, food packages, etc.).	Using simple menus, have students identify what comes with a meal. Look at simple ingredients or nutritional value in food items. Read obituaries in the newspaper. Use student interests to determine what areas to cover, such as food labels, Rx labels, laundry instructions, sports scores, the weather, etc.
R.3.1.2 Respond to instructional level text by identifying sequence and making predictions.	Respond to instructional level text by identifying sequence in one passage and making predictions (by using illustrations and titles) in another passage.	Sequencing: Arrange cut-up comic strips in their correct order. Predicting: Ask a student to tell the class about something that happened to him or her without telling the ending. Ask the other students to predict what happened next. Have students make a timeline of the their life or daily routine.

R.3.1.3 Interpret and follow very simple visual instructions that utilize pictures and diagrams. With prompting and support, describe the relationship between illustrations and the story in which they appear (ex. what moment in a story an illustration depicts).	Interpret and follow a very simple set of visual instructions that utilize pictures and diagrams for one task. Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in the story (ex. create mood, emphasize aspects of a character or setting).	Have students develop picture directions for making a peanut butter and jelly sandwich or a fruit smoothie for their classmate to use. Have a fun day where everyone makes a recipe. After they develop recipes, cut directions apart and let another student group reassemble the recipe directions in correct order. Give students a diagram (wrap a bandage, change a tire, brush teeth, planting flowers) and have the students either perform the task or explain how based on the diagram.
R.3.1.4 Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	Read a selected text and ask questions to correctly identify the meaning of five words from the text.	Have students read a short story underlining words they do not understand and then circle other words in the sentence that might be a clue to the meaning. Students can then guess at the meaning and verify by using a dictionary.
R.3.1.5 Know and use various text features (ex. headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	Demonstrate an understanding of a variety of text features by locating and identifying key components of real-life materials.	Have students use magazines or other print sources to identify key information such as headings, titles, tables, maps, charts, schedules, etc. Have students cut out each text feature and create a wall display of their findings. As a whole group, have students discuss how text features can help with comprehending the text.
R.3.1.6 Closely read a text to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	Closely read an assigned text and cite evidence to support logical inferences.	Have students practice close reading of complex text at the appropriate instructional level.
R.3.1.7 Demonstrate self-monitoring strategies.	Demonstrate self-monitoring strategies (e.g., self-correct when an incorrectly identified word does not fit) by reading at least two passages for the instructor.	Have students keep a journal where they write about how they think they are doing with learning to read. See journal idea above. Have students read a passage and use a checklist to determine "Did I…" (read the title, stop and summarize what I read, understand what I read, understand the vocabulary, etc.).

R.4 Fluency: The student will develop and demonstrate knowledge of different reading strategies to read a variety of literary, functional, and informational text with accuracy and speed.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.4.1.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	Read orally, with accuracy and comprehension, texts designed for the instructional level.	Allow students to "echo" read with instructor. Have teams of students do shared reading, i.e., one group reads the first sentence, the next group reads the next sentence and so forth and continue to take turns reading sentences. Instructor models fluent reading by reading aloud to class from authentic (real-life) text. Use a short poem and assign each student a line to practice. Have students read their lines to a partner and practice until mastered. Then the group can read the entire poem.
R.4.1.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Have student use the context to clarify the meaning of three highlighted words in the text.	Highlight words in several text for students to focus on when reading and practice using the context within the text to clarify meaning.

R.5 Literature and Informational Text: The student will develop and demonstrate knowledge of a range of increasingly complex literature and informational texts.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.5.1.1 Retell stories, including key details and main topic, and demonstrate understanding of their central message or lesson.	After reading a selected story student retells the story to the instructor and includes information about main topic and message or lesson.	Have students role-play stories that they have read and verbalize the main topic and message/lesson. Have students illustrate the story they have read and share illustration and summary of story with class.
R.5.1.2 Describe characters, settings, and major events in a story, using key details. Describe the connection between two individuals, events, ideas, or pieces of information in a text.	Student will be able to fill in a blank graphic organizer in the areas related to characters, setting, major events, and key connections between characters.	Have students work with at least two different graphic organizers for stories. Use stories that depict real-life characters. Use real-life stories and events for students to practice identifying the connections between the characters, events, ideas or information in the texts.
R.5.1.3 Identify words and phrases in stories or poems that suggest feelings or appeal to the senses and be able to clarify the meaning of words and phrases.	Given a story or poem, a student correctly identifies five words or phrases that suggest feelings or appeal to the senses.	Have students use current newspaper or magazine articles to highlight words or phrases that suggest feelings or that appeal to the senses.
R.5.1.4 Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	Given a list of books, a student correctly identifies at least three books that give information and three that tells stories. Given a book,, a student is able to identify and orally explain how to use at least text features such as headings, table of contents, and glossaries.	Have students use current textbooks for different subject areas to identify the text features that would help with reading the book. Use text books at their current reading level, but also may use textbooks at one level higher and show how even harder to read books have the same text features.
R.5.1.5 Identify who is telling the story at various points in a text.	Student correctly identifies who is the storyteller at three specific points in the story.	Re-write story in conversation format and assign characters to individual students.
R.5.1.6 With support, compare and contrast the adventures and experiences of characters in familiar stories and identify major events and settings in a story.	Correctly identify the setting of three events in a story and compare with the setting of three events from a similar story.	Match illustrations of settings with details of events from individual stories. List items found in particular settings from the story and describe using simple adjectives. List items from classroom setting that can be described using the same adjectives.
R.5.1.7 Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	Identify five (5) similarities and five (5) differences in texts of the same topic.	Students view 2 illustrations on the same topic and explain how they are alike and different with a Venn diagram or chart.
R.5.1.8 Read appropriately complex informational text, prose, and poetry for current reading level.	Read informational text or literature aloud.	Use choral reading activities with poetry, songs, plays. Have students write poetry, songs, and/or plays and then read them aloud to the class.

Reading Benchmarks, Performance Indicators, and Sample Activities with Real-life Application

Level 2 – Grade Level 2.0-3.9

R.1 Print Concepts/Phonemic Awareness/Word Analysis: The student will develop and demonstrate knowledge of print concepts and phonemic awareness, word analysis, and decoding strategies to pronounce and derive meaning of words.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.1.2.1 Identify dipthongs (e.g., ou, aw, ay) and use to decode one-syllable words.	Identify dipthongs (e.g., ou, aw, ay) and use them to decode at least twenty one-syllable words. Read the words to the instructor.	Have students identify dipthongs found in words used in real-life text such as short newspaper article, letters, advertisements, etc.
R.1.2.2 Identify the schwa sound (e.g., away) and use to decode simple words.	Identify the schwa sound (e.g., a as in away) and use it to decode ten simple words.	Have students identify the schwa sound found in a short article or from a list of words they might encounter when reading real-life text.
R.1.2.3 Identify and use silent consonants (e.g., kn, gh).	Identify and use silent consonants (e.g., kn, gh) to read ten simple words.	Have students circle silent consonants found in a short article or from a list of words they might encounter when reading real-life text.
R.1.2.4 Identify words with inflectional endings (e.g., s, es, ed, ing, er, est).	Identify the inflectional endings (e.g., s, es, ed, ing, er, est) from a list of twenty words.	Have students highlight or circle the inflectional endings they find in a paragraph taken from real-life text, i.e., brochures, rental agreements, privacy policies, etc.
R.1.2.5 Identify and use compound words.	Identify compound words in twenty sentences and make five compound words from ten one-syllable words.	Have students identify compound words they find in real-life text such as short newspaper articles, letters, advertisements, etc.
R.1.2.6 Identify and use contractions and be able to match them to the two words being replaced (e.g., I'm for I am).	Match ten contractions to the two words being shortened (e.g., I'm for I am) and identify ten contractions in a paragraph.	Allow students to talk to each other about a recent television show or event they are both familiar with. As they talk, make a list of all contractions they use in conversation. Record the list on the board and have students identify the expanded words or make it a matching game.
R.1.2.7 Identify and know the meaning of the most common root words, prefixes, and suffixes and use them to decode multi-syllable words.	Identify the prefixes and roots in ten words, the suffixes and roots in ten words, and identify the prefixes, suffixes (or both), and roots in five words. Say the words to the instructor.	Make a list of words that contain prefixes and suffixes that students use in conversation. Have students circle the root word in each word.
R.1.2.8 Use decoding strategies (letter-sound correspondences, syllabication patterns, and morphology) to read accurately unfamiliar multisyllabic words in context and out of context.	Use decoding strategies to identify syllables and decode at least ten two or three syllable words.	Use words students encounter in daily life, i.e., street, sidewalk, school, doctor, grocery, etc. for them to decode.

R.2 Vocabulary: The student will develop and demonstrate knowledge of vocabulary skills that include analyzing word structure, determining the meaning of words from context, sorting words into groups by meaning and relationships among words, and applying vocabulary skills in order to understand a wide and varied vocabulary that enhances comprehension of literary, functional, and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.2.2.1 Recognize synonyms, antonyms, homonyms, and homophones for identified vocabulary words presented in isolation or within a group of words.	Identify 10 pairs of synonyms and distinguish meaning in 10 pairs of antonyms and 10 pairs of homonyms and/or homophones (e.g., dear-deer).	Select target vocabulary related to real-life to create stories and other handouts where students select words appropriate to the context.

R.2.2.2 Recognize the correct meaning of words with multiple meanings when presented in text.	Recognize the correct meaning of multiple-meaning words (bill, train) when presented in ten sentences.	Select target vocabulary related to real-life to create stories and other handouts where students select words appropriate to the context.
R.2.2.3 Use structural analysis (familiar word parts: base words, prefixes, and suffixes) and/or context clues to determine the meaning of an unknown word.	Identify at least ten commonly used prefixes and suffixes in words and describe how they affect the meaning of the root word. Use context clues to determine the meaning of ten or more unknown words.	Use newspaper headlines, news articles, or pamphlets from various agencies, i.e., health department, dentist, social services, etc. Have students read a picture book aloud. Using real-life text, play a game by closing eyes and picking any word and then use structural analysis (and context clues) to determine meaning.

R.3 Comprehension: The student will develop and demonstrate knowledge of a variety of comprehension strategies to derive meaning from literary, functional and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.3.2.1 Locate explicitly stated information in functional reading. Ask and answer questions such as who, what, where, when, why and how to demonstrate understanding of key ideas in a text.	Look at one functional reading sample (invitations, bulletins, signs) and answer at least five questions from information explicitly stated in the reading.	Using a variety of signs, invitations, or bulletins, read and derive meaning from the information stated. Have students construct a simple math equation from a word problem. Have students locate information in notes from school or church bulletin.
R.3.2.2 Respond to instructional level text by distinguishing between fact and opinion and by comparing and contrasting ideas.	Distinguish between fact and opinion in one short paragraph.	Read the description of a TV show episode from a TV Guide magazine. Ask specific fact or opinion questions. Have students read or scan short newspaper, magazine, or Internet articles for phrases such as “I believe,” “I conclude,” etc. Discuss whether it is fact or opinion.
R.3.2.3 Evaluate information from simple charts, graphs, labels, and payroll stubs to answer questions.	Evaluate information from one simple chart, graph, label and payroll stub by answering fifteen questions.	Collect sample real-life materials that contain charts, graphs, and tables. Design activities that ask students to locate specific information found in each. Have students read bus schedules or work schedules.
R.3.2.4 Use text features (captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to efficiently locate key facts or information in a text.	Use five newspaper headlines or other titles to draw at least two conclusions for each about simple written materials that would follow.	Give students several headlines or titles and ask them to tell what they think the article is about based solely on the titles. Then have them read the article to determine if their conclusion was correct. .
R.3.2.5 Determine the sequence of events in a story and make predictions about the events.	Determine the sequence (e.g., events in a story, set of directions and/or a missing item) and make predictions in two or more stories.	Ask the students to collect a series of comic strip cutouts and to paste them in sequence on pieces of paper, omitting the concluding picture. Have students draw a concluding cartoon frame for each strip and share them with the class.
R.3.2.6 Use graphic organizers to determine meaning in texts written for this instructional level.	Use a graphic organizer such as story maps or Venn diagrams to determine meaning in at least one text written for this instructional level.	Give students a short article and a graphic organizer to use to help them determine the meaning of the authentic text.
R.3.2.7 Closely read a complex text at the appropriate instructional level to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	Closely read an assigned text and cite evidence to support logical inferences.	Have students practice close reading of complex text at the appropriate instructional level.

R.3.2.8 Self monitor and clearly identify specific words or phrases that cause comprehension difficulties.	Demonstrate self-monitoring techniques to clearly identify comprehension difficulties (e.g., by circling or underlining difficult words) in one short selection taken from a text for this instructional level.	Provide a photocopy of the passages so that students can highlight, underline, and circle the words they do not understand and keep a personal dictionary to record the words with definitions and sentences.
R.4 Fluency: The student will develop and demonstrate knowledge of different reading strategies to read a variety of literary, functional, and informational text with accuracy and speed.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.4.2.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	Read orally, with accuracy and comprehension, a text designed for this instructional level.	Instructor reads aloud to students from real-life text. Allow students to listen to books on CD and follow along in the book.
R.4.2.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Have students read aloud from a selected passage and monitor for self-correction.	Have students read newspaper or magazine articles and then discuss their understanding.

R.5 Literature and Informational Text: The student will develop and demonstrate knowledge of a range of increasingly complex literature and informational texts.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.5.2.1 Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	Be able to chronologically summarize and retell the story in sequence including the main ideas.	Have students perform a readers' theatre and then recount the story in the play. Retell a story as a news broadcast including central message, lesson or moral of story.
R.5.2.2 Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	Use short story to discuss or explain character traits and feelings and how the character's activities contribute to the story's events.	Give students, in pairs, a small stack of index cards that illustrate and name emotions and character traits. Students match cards to sentences by describing each trait. Use various short paragraphs to describe the actions of each trait.
R.5.2.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	Given a series of historical events or steps in a process, a student is able to provide a written description of their connection or describe how a process works.	Have students practice ordering cards that have a series of events or steps in a process.
R.5.2.4 Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	Correctly list 3-5 words or phrases and categorize appropriately.	View a video that includes literal and non-literal language (i.e. "Once upon a time…). Use a T chart or Venn Diagram to distinguish what is real and what is not real.

R.5.2.5 Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	Students correctly sequence cards to re-create the story.	Using a "Once upon a time" format, students create a logical story from beginning to end: students take an index with a part of the story on it and sequence them. Use signal words (then, finally, in the beginning) on the cards as cues. *Can take more than one class period.
R.5.2.6 Distinguish their own point of view from that of the characters in a story or author of a story/text.	After reading a short passage, student will identify author's point of view and distinguish his or her own point of view from the author's.	Answer a list of questions that encourage discussion about their point of view on variety of current topics. Read a short passage that contains author's point of view clearly. As a class, highlight language and/or words that depict
R.5.2.7 Explain how specific images and illustrations contribute to or clarify a story (e.g., create mood, emphasize particular aspects of characters or settings).	Given a story with an illustration, the student is able to explain the dimensions that the illustration adds to the story.	Use newspaper and magazine articles that contain illustrations. Discuss how the illustration adds to the article.
R.5.2.8 Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series) or compare and contrast the most important points and key details presented in two texts on the same topic.	After reading two books by the same author about the same character (such as Anne of Green Gables or Laura Ingalls Wilder) a student will complete a blank compare/contrast graphic organizer.	Have students compare and contrast current stories and articles from two different sources.
R.5.2.9 Read and comprehend informational texts (historical, scientific) and literature (stories, dramas), for the current level, independently and proficiently.	After reading an information or literary text, a student is able to answer appropriate text-based questions with 80% accuracy.	Use a variety of texts at the students' current reading levels for practice and classroom discussions.

Reading Benchmarks, Performance Indicators, and Sample Activities with Real-life Application

Level 3 – Grade Level 4.0-5.9

R.2 Vocabulary: The student will develop and demonstrate knowledge of vocabulary skills that include analyzing word structure, determining the meaning of words from context, sorting words into groups by meaning and relationships among words, and applying vocabulary skills in order to understand a wide and varied vocabulary that enhances comprehension of literary, functional, and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.2.3.1 Use prefixes, suffixes, root words, antonyms, and synonyms to determine meaning of unfamiliar words.	Use prefixes to determine the meaning of ten unfamiliar words; use suffixes to determine the meaning of ten unfamiliar words; use prefixes, suffixes, and root words to determine the antonyms of five unfamiliar words.	Make a list of words that contain prefixes, suffixes, antonyms, and synonyms that students may encounter in real-life, but also words that they may be unfamiliar with. Then, as a group, ask students to use what they know about prefixes, suffixes, root, antonyms, and synonyms to determine the meaning of the word.
R.2.3.2 Identify the meaning of frequently used synonyms, antonyms, homographs, and homonyms.	Identify 20 pairs of synonyms and distinguish meaning in 20 pairs of antonyms and 20 pairs of homonyms and/or homophones appropriate to this instructional level.	Create stories and other handouts using target vocabulary related to real-life where students select words appropriate to context. Identify multiple meanings of frequently used synonyms, antonyms, homographs, and homonyms. Use words from a preselected or prepared list to make a game of Concentration. This activity can be expanded into many other games. Suggested website: http://home.alphalink.com.au/~umbidas/Homonyms_main.htm
R.2.3.3 Recognize and understand clipped and shortened words.	Recognize and understand ten clipped and shortened words (e.g., exam-examination, ad-advertisement, bike-bicycle, etc.).	Discuss what clipped words are, how they are formed, and how they are used in real-life. Ask students to give real-life examples. Once students are familiar with clipped words, have students pair the clipped word with the original word and the definition. Sample list: headmaster→head, microphone→mic, airplane→plane, doctor→doc, administration→admin, limousine→limo, specifications→specs, gymnasium→gym, photograph→photo, television→TV, advertisement→ad
R.2.3.4 Build vocabulary of tier 2 words including general academic words and phrases.	Correctly use tier 2 academic vocabulary when reading aloud or speaking in the classroom.	Use the puzzlemaker.com website to create crossword puzzles for students to complete.

R.3 Comprehension: The student will develop and demonstrate knowledge of a variety of comprehension strategies to derive meaning from literary, functional, and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.3.3.1 Identify the main idea of a text and explain how it is supported by key details; summarize the text.	Identify the main idea and two relevant supporting details of one passage.	Use a medication flier and have the students identify the reason for reading each section, for example: dosage, directions, side effects, pre-cautions, etc. Then list specific details, for example: age, body weight, how many doses daily and etc.
R.3.3.2 Read, interpret diagrams and follow multi-step instructions in policies/procedures written at this level.	Follow the simple written multi-step instructions or diagrams for one task. Read and interpret simplified policies/procedures (e.g., simple employee handbooks, payroll stubs, driver's manual) to answer ten questions.	Bring in something for students to assemble where they must follow the instructions. Have students read student code of conduct, computer use guidelines, Labor and Wage Laws, workplace policies, policies for children's schools, etc.

R.3.3.3 Locate pertinent information in print materials and apply it to answer a question. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	Locate pertinent information in one print material (e.g., ad, label, pay stub, public sign) and apply it to answer ten questions.	Give students articles about different cities, states, etc. Ask students to locate certain information that they can find from the article, i.e., population, types of jobs available, do they have a college in that town, etc. Taking an article about new laws governing cell phone usage in vehicles, have students read the new guidelines and underline main points and answer questions. Make a list of questions and scenarios to quiz students. Breaking into teams play a game answering questions.
R.3.3.4 Evaluate information from simple graphic materials such as charts, pictures, maps, signs, diagrams, tables, or graphs.	Answer at least ten questions from information gathered from one simple graphic material such as a chart, picture, map, sign, diagram, table, or graph.	Collect authentic materials containing graphic information. Ask students to locate specific information they can find within each graphic. Have students make their own charts, pictures, maps, signs, diagrams, tables or graphs when given written information. Discuss why it may be better to present real-life materials in graphic form versus written form. Ask students to plan a vacation of their dreams. Have students plot and identify areas of interest on a map.
R.3.3.5 Draw conclusions and make inferences about short passages.	Draw conclusions and make inferences to answer five questions on each of two short passages (such as by identifying correct multiple choice answers or by writing short answers to questions) for a total of ten questions.	As a group read a short passage stopping before it is completed. Ask the students appropriate questions about the passage to guide thinking and their interpretation. Continue reading to check their conclusions. Ask students to write their ideas about the passage before it is completed. Using short passages, have students select the correct conclusion from a group or match the correct conclusion with the correct passage. Have students write a conclusion to a passage you read aloud in class or a video clip you showed to the class. Have students create a story with pictures/images. Share the pictures with other students to let them try to determine what the story is. Have students write their stories. Have students write a story about unusual photos you show them.
R.3.3.6 Retell, summarize or describe sequence of events in previously read text.	Read an article appropriate for instructional level and write a summary.	Read an article – have the student write a summary of what they read or have them re-write the article in their own words. Have students read an accident report and then retell in their own words what happened. Have students read a story or watch a video and then write a summary using the who, what, where, when , why and how questions.
R.3.3.7 Determine the appropriate reading strategy to acquire specific information or aid comprehension.	Look at two different passages and determine the appropriate reading strategy needed to acquire specific information from those passages (rereading, skimming, scanning, etc.).	Bring in several different types of authentic reading material. Ask students what reading strategy they would use to locate specific information. Have students practice different reading strategies (surveying, previewing, rereading, skimming, scanning, etc.) with different types of material. Let them discuss which strategy worked best with which type of material. Use a graphic organizer to aid students in comparing and contrasting two short stories (like the original Cinderella and a parody).

R.4 Fluency: The student will develop and demonstrate knowledge of different reading strategies to read a variety of literary, functional, and informational text with accuracy and speed.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.4.3.1 Read instructional level text, prose, and poetry orally, with fluency and accuracy and with appropriate pacing, intonation and expression. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.	Read aloud one passage from an instructional level narrative and/or expository text with fluency and accuracy and with appropriate pacing, intonation, and expression.	Allow students to record a book on tape for others students to use or for their children/grandchildren to listen to. Have students write stories/poems and read them aloud to the class. Have students read and role play a drama. (Really make it fun, produce a Reader's Theatre to be performed in front of family and friends.) Use choral reading activities with poetry, songs, plays, etc.
R.4.3.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	Have students read aloud from a selected passage and monitor for self-correction.	Have students read newspaper or magazine articles and then discuss their understanding.

R.5 Literature and Informational Text: The student will develop and demonstrate knowledge of a range of increasingly complex literature and informational texts.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.5.3.1 Quotes accurately from the text when explaining what the text says explicitly and when drawing inferences from the text.	Given statements about a text, a student can provide at least one quote or paraphrase that supports the statement.	Have students read newspaper and magazine articles, stories, and informational pamphlets and then explain what the texts says, discuss inferences they might draw from the text, provide a summary, describe how characters were able to meet a challenge, compare and contrast characters, setting or events, etc. Ask students to identify an item that they are interested in buying in the near future. Have them compare products using both positive and negative aspects. Do this through the use of print ads, Internet, and physically shopping for the product. Based on this have them choose the best product. Use a graphic organizer (Venn Diagram) to compare two items, events, settings, etc.
R.5.3.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text, including main ideas.	After reading an appropriate text, a student can orally or in writing provide a summary, explain the theme, or describe how characters were able to meet a challenge.	
R.5.3.3 Compare and contrast two or more characters, settings, or events in a story or drama drawing on specific details in the text (e.g., how characters interact). Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	After reading an appropriate text, a student can describe the relationship between two characters, settings, events, etc.	
R.5.3.4 Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.	Identify 5 examples of metaphors and similes. Given a phrase in figurative language student will explain the meaning.	Use illustrations to depict common idioms (hungry as a horse, raining cats and dogs, head over heals). Then have students write a sentence with the meaning of the idiom.

R.5.3.5 Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem. Compare and contrast the organizational structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect, problem/solution) in two or more texts.	Given two different texts, explain the organizational structure of each and how they compare.	Use "T" chart graphic organizer to compare and contrast two different events, structure, etc. in two different texts for current events.
R.5.3.6 Understand and analyze different points of view. For example, describe how a narrator's or speaker's point of view influences how events are described or analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.	Given two different points of view from a text, correctly describe at least two similarities or differences.	Read newspaper articles or magazine articles on the same topic but written by different authors. Compare and contrast the similarities and differences in the point of view each author represents.
R.5.3.7 Analyze how visual and multimedia elements in conjunction with words contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction).	After viewing a multi-media presentation, a student can describe how the multi-media elements add to the story.	As a class read and discuss a graphic novel. Discuss how the visuals contribute to the tone and meaning of the novel.
R.5.3.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence supports which point(s).	Given five points from a text, identify text-based evidence that supports the points.	Use newspaper or magazine articles to identify several points made by the author and then identify the reasons or evidence the author uses to support those points.
R.5.3.9 Read and comprehend informational texts (historical, scientific, and technical texts) and literature (stories, dramas, and poetry), for the current level, independently and proficiently.	After reading an appropriate text, a student answers text-based questions with 80% accuracy.	Read and discuss different types of grade level text.
5.3.10 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	Given an appropriate text, a student completes a what, why, how chart with at least 80% accuracy.	Use articles from a scientific magazine to discuss events, procedures, ideas and concepts presented in the article.

Reading Benchmarks, Performance Indicators, and Sample Activities with Real-life Application

Level 4 – Grade Level 6.0-8.9

R.2 Vocabulary: The student will develop and demonstrate knowledge of vocabulary skills that include analyzing word structure, determining the meaning of words from context, sorting words into groups by meaning and relationships among words, and applying vocabulary skills in order to understand a wide and varied vocabulary that enhances comprehension of literary, functional, and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.2.4.1 Recognize and comprehend the meaning of moderately complex occupational, technical, and content-specific vocabulary using word, sentence, and paragraph clues to determine meaning.	Identify and define ten occupational, technical, and content-specific vocabulary words from a reading passage (newspaper, work manual, magazine, drivers manual, etc.).	Use real-life text, i.e., safety or drivers manuals, college catalogs, brochures, occupational handouts, etc. to identify and define content-specific vocabulary. Locate the meaning of ten words from a dictionary. Then, have students locate a synonym, as well as, an antonym for each word.
R.2.4.2 Use a dictionary to locate the meaning of words used in a statement and a thesaurus to find words with the same meaning.	Use a dictionary to locate the meaning of ten words used in a statement and then use a thesaurus to find at least one other word for each with the same meaning.	Use a dictionary to define meanings and a thesaurus to find synonyms for new vocabulary words found in real-life text, i.e. travel or health clinic brochure, workplace literature, safety drivers manual, college handbook, etc. Have students watch the movie, "Charlotte's Web" and have them identify 10 words that are at least 4 syllables that they do not already know. This movie has an excellent list of vocabulary words many students may not be familiar with.
R.2.4.3 Identify and interpret basic figurative language and idioms used in everyday life and in text.	Identify and interpret ten basic figurative language expressions (e.g., similes, metaphors, pun, alliteration) and/or idioms from a poem, song, or passage from a novel.	Using passages from a currently popular novel such as *Harry Potter and the Sorcerer's Stone*, have students identify and interpret figurative language and idioms. Identify and interpret ten basic figurative language expressions (e.g. similes, onomatopoeias) from a song, poem, or a passage from a play or novel.
R.2.4.4 Increase vocabulary of tier 2 words including academic terms and phrases.	Correctly use tier 2 words and academic vocabulary when reading aloud or speaking in the classroom.	Use the puzzlemaker.com website to create crossword puzzles for students to complete. Focus on correctly using tier 2 words and academic terms and phrases in class discussions.

R.3 Comprehension: The student will develop and demonstrate knowledge of a variety of comprehension strategies to derive meaning from literary, functional, and informational text.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.3.4.1 Read and interpret information in common manuals and other functional readings.	Answer ten comprehension questions taken from information found in a common manual (e.g., drivers, workplace, college) and a legal form (passport, rental agreement, etc.). Five questions should be based on a common manual and five questions should be based on a legal form.	Collect multiple forms gathered from rental business, furniture store, loan office, power company, charge card company, etc. Identify new vocabulary words. Have students list questions that arise and help others find answers. Have students identify problems one might face if unable to process the material. Use reading materials such as a nutrition chart, a health clinic brochure, or a newspaper advice column.
R.3.4.2 Read and interpret expository writing on common topics in newspapers, periodicals, and non-technical journals.	Read, interpret, and write a summary of one expository passage on a common topic in a newspaper, periodical, or non-technical journal.	Using *Newsweek*, *News for You*, or local newspaper, identify a topic of concern. Have students read and discuss a common article such as drought, election, or gas prices. Break into teams and have students research the Internet for others articles dealing with the same topic. What are different aspects or views of original article? How does it affect the students? What action could or should be taken?

R.3.4.3 Gather information from at least three reference materials and evaluate which information best serves the student's purpose.	Collect information from three reference materials (table of contents, magazines, Internet, consumer related information, equipment catalogs, etc.) for one assignment and use a graphic organizer (Venn diagram, t-chart, etc.) to compare the information and tell which information best serves the purpose of the assignment.	Have students research career topics. Students should locate at least 3 resources and then determine if each resources is actually useful/relevant. Have them rank the resources as most useful, somewhat useful, not useful and explain how they determined the rankings.
R.3.4.4 Identify the implied main idea and supporting details from an instructional-level passage.	Identify the implied main idea and at least two supporting details from an instructional-level passage (work manuals, warranties, credit offers, safety procedures, etc.).	Have students read short articles from authentic reading material, i.e., book, newspaper, magazine, etc., and then discuss what is implied versus what is stated directly. Discuss what the main idea is and what details make you believe that. Then outline the piece to show how it shows the implied idea. Have students identify the main idea of a game. Then have them write in as best detail as they can the aspects of winning the game.
R.3.4.5 Predict probable outcomes from knowledge of events obtained from a reading selection.	Predict five or more probable outcomes from knowledge of events obtained from one reading selection (e.g., newspaper, child's progress report, health literature, solicitations, movie reviews, etc.).	Do a pre-reading exercise with a current newspaper or magazine article. Read only the first paragraph and then predict the outcome. Use pictures or videos that stop in mid-action. Have students predict what will happen next. Have students read headlines and predict what the story will be about.
R.3.4.6 Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.	Read five different written pieces (e.g., newspaper article, travel brochure, store catalog, ad, etc.) and determine the author's purpose (to entertain, inform, persuade).	Divide students into groups and assign variety of literary works (one per group). After they read, have them discuss the audience, purpose, and perspective of the piece in their groups. Then have the students write a similar piece and identify the audience, purpose, and perspective. Have students identify the purpose of a passage and then write a headline or title that addresses that particular purpose.
R.3.4.7 Distinguish factual information from opinion or fiction. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.	Distinguish fact from opinion and fiction in ten or more sentences. Have students brainstorm a list of words that signal the material may be opinion rather than fact. Have them locate some of these words in news/opinion stories from the newspaper.	Have students read conflicting editorials from a newspaper and distinguish factual information from opinion. Have students discuss an issue, choose three statements about that issue, and identify each as opinion or fact. Have them write statements and use words that will change the statement from fact to opinion or opinion to fact. Have students brainstorm a list of words that signal the material may be opinion rather than fact. Have them locate some of these words in articles from the newspaper.
R.3.4.8 Determine the meaning of persuasive language and propaganda used in functional text.	Read four advertisements and determine the meaning of persuasive language and propaganda used by identifying and explaining the meaning of five words and/or phrases found in each advertisement.	Have students make a collage with magazine advertisements with persuasive language and propaganda. Choose a current "hot" topic and have students find articles about it, both pro and con. Then have students identify fact from opinion in each. Use ads, political cartoons, and propaganda material from history (i.e., World War I and II, Holocaust, slavery, American Revolution, etc.) to discuss persuasive language and propaganda.

R.3.4.9 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	Using at least two sources of information (texts, charts, and/or graphs), draw conclusions for two questions.	Have students form small groups; assign each group a text, chart, and graph. Within the small groups, have students discuss and analyze each piece of data. Discuss conclusions, then take material and follow-up with a piece that analyzes an assigned reading and draw conclusions. Have students collect data based on class stats, make a graph (bar, histograph, pie chart, etc.), and then draw conclusions based on the data collected.
R.3.4.10 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	Use stated and suggested information to infer the meaning of five phrases used in the context of sentences and paragraphs.	Use billboards, Internet, ad sales and flyers to discuss what is plainly stated vs. what is inferred. Have students research the Internet to find propaganda or bring in propaganda from any major world event and discuss the inferred meaning versus the stated meanings. Have them discuss why they believe that is what is being implied, what cues they used to get the meaning.
R.3.4.11 Identify and use the structural features of newspapers, magazines, and editorials to gain meaning from text.	Identify and use the structural features (e.g., headlines, table of contents, graphics) of newspapers, magazines, and editorials to gain meaning from text necessary to answer ten questions.	Have students underline the parts of a newspaper or magazine article that helped them to understand the text.
R.3.4.12 Clarify understanding of non-fictional passages by creating outlines, graphic organizers, logical notes, summaries, or reports.	Create an outline, graphic organizer, logical notes, summary, or report to show the meaning of a non-fictional passage.	Identify fictional vs. non-fictional. Then using periodicals have students read articles for an outline and graphic organizer and summarize the material. Then have a class discussion. Give students a narrative text of information. For example: weather or financial report and ask them to interpret it in a graph, outline, summary, etc. Have students locate news articles online and create an outline, graphic organizer, summary, or report to demonstrate understanding of the text.

R.4 Fluency: The student will develop and demonstrate knowledge of different reading strategies to read a variety of literary, functional, and informational text with accuracy and speed.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.4.4.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	Read aloud one passage from an instructional level narrative and/or expository text with fluency and accuracy and with appropriate pacing, intonation, and expression.	Use collaborative oral reading to read a short stories and novels at the appropriate instructional level(s).

R.5 Literature and Informational Text: The student will gain exposure to a range of texts and tasks and read increasingly complex texts.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
R.5.4.1 Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).	Given two elements from a story (setting, characters, etc.) explain how they influence the story.	Use collaborative oral reading to read stories and drama text and discuss how the setting shapes the characters or plots.
R.5.4.2 Analyze how a drama's or poem's form or structure (e.g. sonnet, soliloquy) contributes to its meaning.	After reading a poem, explain how its structure influenced the poems meaning.	Have students practice analyzing and discussing how a drama's or poem's form or structure contributes to its meaning.
R.5.4.3 Compare and contrast the experience of reading a text to experiencing an audio, video, or multimedia version of it, analyzing the text's portrayal in each medium (e.g., how the delivery of a speech affects the impact of the words).	After reading and seeing a video of a speech, write a paragraph comparing and contrasting the two presentations.	Read a book that also has a movie based on the book. After reading the book and viewing the movie. Compare and contrast the book and movie – how were events similar and how were they different. Have students do the same activity by reading a speech and then watching a video of the same speech.
R.5.4.4 Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.	Read two opposing editorial points of view and, choosing one perspective, write an extended response.	Using either print or online newspapers, students will locate editorial pages, read both points of view, choose a "side," and write an extended response of approximately 200-250 words.
R.5.4.5 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.	Read three short texts on the same topic and write a response that compares and contrasts the three texts.	Read and discuss texts on the same topic in class. Discuss how they are similar and how they are different.
R.5.4.6 Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	After reading a text, write a summary of its theme including how it was developed.	Practice summarizing text using different summary techniques such as one sentence summaries; who, what, when, where, why and how summaries; etc.
R.5.4.7 Analyze the structure (sentence, paragraph, chapter, or section) an author uses to organize a text including how it fits into the overall structure of a text and contributes to the development of the ideas.	After reading a text, complete a text structure graphic organizer and then write a paragraph describing how the text structure influenced the text.	Analyze different articles for sentence structure an author uses to organize the text and discuss how the contributes to the development of the author's ideas.
R.5.4.8 Read and comprehend literature, including stories, dramas, and poetry, as well as nonfiction, for the current level, independently and proficiently.	Create an outline, graphic organizer, synopsis, summary, or notes to show meaning. Read aloud a passage from fictional or non-fictional text with fluency and appropriate phrasing and expression.	Identify fictional vs. nonfictional writings. Using poetry anthologies, periodicals, and/or collected works of drama, students create an outline and/or graphic organizer and summarize material. Read aloud and have class discussion.

Level 1: Student Reading Checklist **Name _____**

R.1 Phonemic Awareness/Word Analysis	**Date**
R.1.1.1 Recognize the concepts of print (left to right, top to bottom, front to back, return sweep). Understand that words are separated by spaces in print. Recognize the distinguishing features of a sentence.	
R.1.1.2 Recognize and discriminate among lowercase and uppercase letters and their corresponding sounds. Recognize that spoken words are represented in written language by specific sequences of letters.	
R.1.1.3 Identify single consonants/sounds in initial, middle, and final word positions and manipulate initial sounds to recognize, create and use rhyming words.	
R.1.1.4 Identify vowels (short, long, r-controlled, and vowel combinations) and their sounds. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.	
R.1.1.5 Identify two-letter consonant blends and digraphs in initial and final word positions and use these to decode one and two syllable words.	
R.1.1.6 Segment spoken one-syllable words into their complete sequence of individual sounds (phonemes) and then substitute individual sounds to make new words.	
R.2 Vocabulary	**Date**
R.2.1.1 Demonstrate ability to read personal information (name, address, zip code, phone number, age).	
R.2.1.2 Read common high-frequency words by sight (ex. the, of, to, you, she, my, is, are, do, does).	
R.2.1.3 Identify common functional and survival signs and labels with one word or symbol.	
R.2.1.4 Read common numbers, symbols and abbreviations (e.g., clock time, prices, sizes, dollar sign) in isolated words and phrases in familiar contexts.	
R.3 Comprehension	**Date**
R.3.1.1 Locate pertinent information in simple, familiar materials and ask and answer questions about the key details.	
R.3.1.2 Respond to instructional level text by identifying sequence and making predictions.	
R.3.1.3 Interpret and follow very simple visual instructions that utilize pictures and diagrams. With prompting and support, describe the relationship between illustrations and the story in which they appear.	
R.3.1.4 Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	
R.3.1.5 Know and use various text features (ex. headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	
R.3.1.5 Closely read a text to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	
R.3.1.6 Demonstrate self-monitoring strategies.	
R.4 Fluency	**Date**
R.4.1.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.4.1.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.5 Literature and Informational Text	**Date**
R.5.1.1 Retell stories, including key details and main topic, and demonstrate understanding of their central message or lesson.	
R.5.1.2 Describe characters, settings, and major events in a story, using key details. Describe the connection between two individuals, events, ideas, or pieces of information in a text.	
R.5.1.3 Identify words and phrases in stories or poems that suggest feelings or appeal to the senses and be able to clarify the meaning of words and phrases.	
R.5.1.4 Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	
R.5.1.5 Identify who is telling the story at various points in a text.	
R.3.1.6 With support, compare and contrast the adventures and experiences of characters in familiar stories and identify major events and settings in a story.	
R.5.1.7 Identify basic similarities in and differences between two texts on the same topic.	
R.5.1.8 Read appropriately complex informational text, prose, and poetry for current reading level.	

Level 2: Student Reading Checklist **Name _____**

R.1 Phonemic Awareness/Word Analysis	**Date**
R.1.2.1 Identify dipthongs (e.g., ou, aw, ay) and use to decode one-syllable words.	
R.1.2.2 Identify the schwa sound (e.g., away) and use to decode simple words.	
R.1.2.3 Identify and use silent consonants (e.g., kn, gh).	
R.1.2.4 Identify words with inflectional endings (e.g., s, es, ed, ing, er, est).	
R.1.2.5 Identify and use compound words.	
R.1.2.6 Identify and use contractions and be able to match them to the two words being replaced (e.g., I'm for I am).	
R.1.2.7 Identify and know the meaning of the most common root words, prefixes, and suffixes and use them to decode multi-syllable words.	
R.1.2.8 Use decoding strategies (letter-sound correspondences, syllabication patterns, and morphology) to read accurately unfamiliar multisyllabic words in context and out of context.	
R.2 Vocabulary	**Date**
R.2.2.1 Recognize synonyms, antonyms, homonyms, and homophones for identified vocabulary words presented in isolation or within a group of words.	
R.2.2.2 Recognize the correct meaning of words with multiple meanings when presented in text.	
R.2.2.3 Use structural analysis (familiar word parts: base words, prefixes, and suffixes) and/or context clues to determine the meaning of an unknown word.	
R.3 Comprehension	**Date**
R.3.2.1 Locate explicitly stated information in functional reading. Ask and answer questions such as who, what, where, when, why and how to demonstrate understanding of key ideas in a text.	
R.3.2.2 Respond to instructional level text by distinguishing between fact and opinion and by comparing and contrasting ideas.	
R.3.2.3 Evaluate information from simple charts, graphs, labels, and payroll stubs to answer questions.	
R.3.2.4 Use text features (captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to efficiently locate key facts or information in a text.	
R.3.2.5 Determine the sequence of events in a story and make predictions about the events.	
R.3.2.6 Use graphic organizers to determine meaning in texts written for this instructional level.	
R.3.2.7 Closely read a complex text at the appropriate instructional level to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	
R.3.2.8 Self monitor and clearly identify specific words or phrases that cause comprehension difficulties.	
R.4 Fluency	**Date**
R.4.2.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.4.2.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.5 Literature and Informational Text	**Date**
R.5.2.1 Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	
R.5.2.2 Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	
R.5.2.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	
R.5.2.4 Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	
R.5.2.5 Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	
R.5.2.6 Distinguish their own point of view from that of the characters in a story or author of a story/text.	
R.5.2.7 Explain how specific images and illustrations contribute to or clarify a story.	
R.5.2.8 Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series) or compare and contrast the most important points and key details presented in two texts on the same topic.	
R.5.2.9 Read and comprehend informational texts (historical, scientific) and literature (stories, dramas), for the current level, independently and proficiently.	

Level 3: Student Reading Checklist **Name _____**

R.2 Vocabulary	**Date**
R.2.3.1 Use prefixes, suffixes, root words, antonyms, and synonyms to determine meaning of unfamiliar words.	
R.2.3.2 Identify the meaning of frequently used synonyms, antonyms, homographs, and homonyms.	
R.2.3.3 Recognize and understand clipped and shortened words.	
R.2.3.4 Build vocabulary of tier 2 words including general academic words and phrases.	
R.3 Comprehension	**Date**
R.3.3.1 Identify the main idea of a text and explain how it is supported by key details; summarize the text.	
R.3.3.2 Read, interpret diagrams and follow multi-step instructions in policies/procedures written at this level.	
R.3.3.3 Locate pertinent information in print materials and apply it to answer a question. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	
R.3.3.4 Evaluate information from simple graphic materials such as charts, pictures, maps, signs, diagrams, tables, or graphs.	
R.3.3.5 Draw conclusions and make inferences about short passages.	
R.3.3.6 Retell, summarize or describe sequence of events in previously read text.	
R.3.3.7 Determine the appropriate reading strategy to acquire specific information or aid comprehension.	
R.4 Fluency	**Date**
R.4.3.1 Read instructional level text, prose, and poetry orally, with fluency and accuracy and with appropriate pacing, intonation and expression. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.	
R.4.3.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.5 Literature and Informational Text	**Date**
R.5.3.1 Quotes accurately from the text when explaining what the text says explicitly and when drawing inferences from the text.	
R.5.3.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text, including main ideas.	
R.5.3.3 Compare and contrast two or more characters, settings, or events in a story or drama drawing on specific details in the text (e.g., how characters interact). Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	
R.5.3.4 Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.	
R.5.3.5 Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem. Compare and contrast the organizational structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect, problem/solution) in two or more texts.	
R.5.3.6 Understand and analyze different points of view. For example, describe how a narrator's or speaker's point of view influences how events are described or analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.	
R.5.3.7 Analyze how visual and multimedia elements in conjunction with words contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction).	
R.5.3.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence supports which point(s).	
R.5.3.9 Read and comprehend informational texts (historical, scientific, and technical texts) and literature (stories, dramas, and poetry), for the current level, independently and proficiently.	
5.3.10 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	

Level 4: Student Reading Checklist **Name _____**

R.2 Vocabulary	Date
R.2.4.1 Recognize and comprehend the meaning of moderately complex occupational, technical, and content-specific vocabulary using word, sentence, and paragraph clues to determine meaning.	
R.2.4.2 Use a dictionary to locate the meaning of words used in a statement and a thesaurus to find words with the same meaning.	
R.2.4.3 Identify and interpret basic figurative language and idioms used in everyday life and in text.	
R.2.4.4 Increase vocabulary of tier 2 words including academic terms and phrases.	
R.3 Comprehension	Date
R.3.4.1 Read and interpret information in common manuals and other functional readings.	
R.3.4.2 Read and interpret expository writing on common topics in newspapers, periodicals, and non-technical journals.	
R.3.4.3 Gather information from at least three reference materials and evaluate which information best serves the student's purpose.	
R.3.4.4 Identify the implied main idea and supporting details from an instructional-level passage.	
R.3.4.5 Predict probable outcomes from knowledge of events obtained from a reading selection.	
R.3.4.6 Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.	
R.3.4.7 Distinguish factual information from opinion or fiction. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.	
R.3.4.8 Determine the meaning of persuasive language and propaganda used in functional text.	
R.3.4.9 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	
R.3.4.10 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	
R.3.4.11 Identify and use the structural features of newspapers, magazines, and editorials to gain meaning from text.	
R.3.4.12 Clarify understanding of non-fictional passages by creating outlines, graphic organizers, logical notes, summaries, or reports.	
R.4 Fluency	Date
R.4.4.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.5 Literature and Informational Text	Date
R.5.4.1 Analyze how particular elements of a story or drama interact.	
R.5.4.2 Analyze how a drama's or poem's form or structure (e.g. sonnet, soliloquy) contributes to its meaning.	
R.5.4.3 Compare and contrast the experience of reading a text to experiencing an audio, video, or multimedia version of it, analyzing the text's portrayal in each medium.	
R.5.4.4 Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.	
R.5.4.5 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.	
R.5.4.6 Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	
R.5.4.7 Analyze the structure (sentence, paragraph, chapter, or section) an author uses to organize a text including how it fits into the overall structure of a text and contributes to the development of the ideas.	
R.5.4.8 Read and comprehend literature, including stories, dramas, and poetry, as well as nonfiction, for the current level, independently and proficiently.	

Level 1: Instructor Reading Checklist

R.1 Phonemic Awareness/Word Analysis	Materials Used - Include specific activity, book, page number, etc.
R.1.1.1 Recognize the concepts of print (left to right, top to bottom, front to back, return sweep). Understand that words are separated by spaces in print. Recognize the distinguishing features of a sentence.	
R.1.1.2 Recognize and discriminate among lowercase and uppercase letters and their corresponding sounds. Recognize that spoken words are represented in written language by specific sequences of letters.	
R.1.1.3 Identify single consonants/sounds in initial, middle, and final word positions and manipulate initial sounds to recognize, create and use rhyming words.	
R.1.1.4 Identify vowels (short, long, r-controlled, and vowel combinations) and their sounds. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.	
R.1.1.5 Identify two-letter consonant blends and digraphs in initial and final word positions and use these to decode one and two syllable words.	
R.1.1.6 Segment spoken one-syllable words into their complete sequence of individual sounds (phonemes) and then substitute individual sounds to make new words.	
R.2 Vocabulary	**Materials Used - Include specific activity, book, page number, etc.**
R.2.1.1 Demonstrate ability to read personal information (name, address, zip code, phone number, age).	
R.2.1.2 Read common high-frequency words by sight (ex. the, of, to, you, she, my, is, are, do, does).	
R.2.1.3 Identify common functional and survival signs and labels with one word or symbol.	
R.2.1.4 Read common numbers, symbols and abbreviations (e.g., clock time, prices, sizes, dollar sign) in isolated words and phrases in familiar contexts.	
R.3 Comprehension	**Materials Used - Include specific activity, book, page number, etc.**
R.3.1.1 Locate pertinent information in simple, familiar materials and ask and answer questions about the key details.	
R.3.1.2 Respond to instructional level text by identifying sequence and making predictions.	
R.3.1.3 Interpret and follow very simple visual instructions that utilize pictures and diagrams. With prompting and support, describe the relationship between illustrations and the story in which they appear.	
R.3.1.4 Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	
R.3.1.5 Know and use various text features (ex. headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	
R.3.1.5 Closely read a text to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	
R.3.1.6 Demonstrate self-monitoring strategies.	
R.4 Fluency	**Materials Used - Include specific activity, book, page number, etc.**
R.4.1.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.4.1.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	

Level 1: Instructor Reading Checklist, Page 2

R.5 Literature and Informational Text	Materials Used - Include specific activity, book, page number, etc.
R.5.1.1 Retell stories, including key details and main topic, and demonstrate understanding of their central message or lesson.	
R.5.1.2 Describe characters, settings, and major events in a story, using key details. Describe the connection between two individuals, events, ideas, or pieces of information in a text.	
R.5.1.3 Identify words and phrases in stories or poems that suggest feelings or appeal to the senses and be able to clarify the meaning of words and phrases.	
R.5.1.4 Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	
R.5.1.5 Identify who is telling the story at various points in a text.	
R.3.1.6 With support, compare and contrast the adventures and experiences of characters in familiar stories and identify major events and settings in a story.	
R.5.1.7 Identify basic similarities in and differences between two texts on the same topic.	
R.5.1.8 Read appropriately complex informational text, prose, and poetry for current reading level.	

Reading Level 2: Instructor Checklist

R.1 Phonemic Awareness/Word Analysis	Materials Used - Include specific activity, book, page number, etc.
R.1.2.1 Identify dipthongs (e.g., ou, aw, ay) and use to decode one-syllable words.	
R.1.2.2 Identify the schwa sound (e.g., away) and use to decode simple words.	
R.1.2.3 Identify and use silent consonants (e.g., kn, gh).	
R.1.2.4 Identify words with inflectional endings (e.g., s, es, ed, ing, er, est).	
R.1.2.5 Identify and use compound words.	
R.1.2.6 Identify and use contractions and be able to match them to the two words being replaced (e.g., I'm for I am).	
R.1.2.7 Identify and know the meaning of the most common root words, prefixes, and suffixes and use them to decode multi-syllable words.	
R.1.2.8 Use decoding strategies (letter-sound correspondences, syllabication patterns, and morphology) to read accurately unfamiliar multisyllabic words in context and out of context.	
R.2 Vocabulary	**Materials Used - Include specific activity, book, page number, etc.**
R.2.2.1 Recognize synonyms, antonyms, homonyms, and homophones for identified vocabulary words presented in isolation or within a group of words.	
R.2.2.2 Recognize the correct meaning of words with multiple meanings when presented in text.	
R.2.2.3 Use structural analysis (familiar word parts: base words, prefixes, and suffixes) and/or context clues to determine the meaning of an unknown word.	
R.3 Comprehension	**Materials Used - Include specific activity, book, page number, etc.**
R.3.2.1 Locate explicitly stated information in functional reading. Ask and answer questions such as who, what, where, when, why and how to demonstrate understanding of key ideas in a text.	
R.3.2.2 Respond to instructional level text by distinguishing between fact and opinion and by comparing and contrasting ideas.	
R.3.2.3 Evaluate information from simple charts, graphs, labels, and payroll stubs to answer questions.	
R.3.2.4 Use text features (captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to efficiently locate key facts or information in a text.	
R.3.2.5 Determine the sequence of events in a story and make predictions about the events.	
R.3.2.6 Use graphic organizers to determine meaning in texts written for this instructional level.	
R.3.2.7 Closely read a complex text at the appropriate instructional level to determine what the text says, make logical inferences from it, and cite evidence from the text to support claims.	
R.3.2.8 Self monitor and clearly identify specific words or phrases that cause comprehension difficulties.	

Reading Level 2: Instructor Checklist, Page 2

R.4 Fluency	Materials Used - Include specific activity, book, page number, etc.
R.4.2.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.4.2.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.5 Literature and Informational Text	**Materials Used - Include specific activity, book, page number, etc.**
R.5.2.1 Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	
R.5.2.2 Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	
R.5.2.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	
R.5.2.4 Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	
R.5.2.5 Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	
R.5.2.6 Distinguish their own point of view from that of the characters in a story or author of a story/text.	
R.5.2.7 Explain how specific images and illustrations contribute to or clarify a story.	
R.5.2.8 Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series) or compare and contrast the most important points and key details presented in two texts on the same topic.	
R.5.2.9 Read and comprehend informational texts (historical, scientific) and literature (stories, dramas), for the current level, independently and proficiently.	

Reading Level 3: Instructor Checklist

R.2 Vocabulary	Materials Used - Include specific activity, book, page number, etc.
R.2.3.1 Use prefixes, suffixes, root words, antonyms, and synonyms to determine meaning of unfamiliar words.	
R.2.3.2 Identify the meaning of frequently used synonyms, antonyms, homographs, and homonyms.	
R.2.3.3 Recognize and understand clipped and shortened words.	
R.2.3.4 Build vocabulary of tier 2 words including general academic words and phrases.	
R.3 Comprehension	**Materials Used - Include specific activity, book, page number, etc.**
R.3.3.1 Identify the main idea of a text and explain how it is supported by key details; summarize the text.	
R.3.3.2 Read, interpret diagrams and follow multi-step instructions in policies/procedures written at this level.	
R.3.3.3 Locate pertinent information in print materials and apply it to answer a question. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	
R.3.3.4 Evaluate information from simple graphic materials such as charts, pictures, maps, signs, diagrams, tables, or graphs.	
R.3.3.5 Draw conclusions and make inferences about short passages.	
R.3.3.6 Retell, summarize or describe sequence of events in previously read text.	
R.3.3.7 Determine the appropriate reading strategy to acquire specific information or aid comprehension.	
R.4 Fluency	**Materials Used - Include specific activity, book, page number, etc.**
R.4.3.1 Read instructional level text, prose, and poetry orally, with fluency and accuracy and with appropriate pacing, intonation and expression. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.	
R.4.3.2 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.5 Literature and Informational Text	**Materials Used - Include specific activity, book, page number, etc.**
R.5.3.1 Quotes accurately from the text when explaining what the text says explicitly and when drawing inferences from the text.	
R.5.3.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text, including main ideas.	
R.5.3.3 Compare and contrast two or more characters, settings, or events in a story or drama drawing on specific details in the text (e.g., how characters interact). Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	
R.5.3.4 Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.	

Reading Level 3: Instructor Checklist, Page 2

R.5.3.5 Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem. Compare and contrast the organizational structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect, problem/solution) in two or more texts.	
R.5.3.6 Understand and analyze different points of view. For example, describe how a narrator's or speaker's point of view influences how events are described or analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.	
R.5.3.7 Analyze how visual and multimedia elements in conjunction with words contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction).	
R.5.3.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence supports which point(s).	
R.5.3.9 Read and comprehend informational texts (historical, scientific, and technical texts) and literature (stories, dramas, and poetry), for the current level, independently and proficiently.	
5.3.10 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	

Reading Level 4: Instructor Checklist

R.2 Vocabulary	Materials Used - Include specific activity, book, page number, etc.
R.2.4.1 Recognize and comprehend the meaning of moderately complex occupational, technical, and content-specific vocabulary using word, sentence, and paragraph clues to determine meaning.	
R.2.4.2 Use a dictionary to locate the meaning of words used in a statement and a thesaurus to find words with the same meaning.	
R.2.4.3 Identify and interpret basic figurative language and idioms used in everyday life and in text.	
R.2.4.4 Increase vocabulary of tier 2 words including academic terms and phrases.	
R.3 Comprehension	**Materials Used - Include specific activity, book, page number, etc.**
R.3.4.1 Read and interpret information in common manuals and other functional readings.	
R.3.4.2 Read and interpret expository writing on common topics in newspapers, periodicals, and non-technical journals.	
R.3.4.3 Gather information from at least three reference materials and evaluate which information best serves the student's purpose.	
R.3.4.4 Identify the implied main idea and supporting details from an instructional-level passage.	
R.3.4.5 Predict probable outcomes from knowledge of events obtained from a reading selection.	
R.3.4.6 Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.	
R.3.4.7 Distinguish factual information from opinion or fiction. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.	
R.3.4.8 Determine the meaning of persuasive language and propaganda used in functional text.	
R.3.4.9 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	
R.3.4.10 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	
R.3.4.11 Identify and use the structural features of newspapers, magazines, and editorials to gain meaning from text.	
R.3.4.12 Clarify understanding of non-fictional passages by creating outlines, graphic organizers, logical notes, summaries, or reports.	

Reading Level 4: Instructor Checklist, Page 2

R.4 Fluency	Materials Used - Include specific activity, book, page number, etc.
R.4.4.1 Read instructional level text orally, with fluency and accuracy and with appropriate pacing, intonation and expression with understanding and purpose. Use content to confirm or self-correct word recognition and understanding, rereading as necessary.	
R.5 Literature and Informational Text	**Materials Used - Include specific activity, book, page number, etc.**
R.5.4.1 Analyze how particular elements of a story or drama interact.	
R.5.4.2 Analyze how a drama's or poem's form or structure (e.g. sonnet, soliloquy) contributes to its meaning.	
R.5.4.3 Compare and contrast the experience of reading a text to experiencing an audio, video, or multimedia version of it, analyzing the text's portrayal in each medium.	
R.5.4.4 Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.	
R.5.4.5 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.	
R.5.4.6 Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	
R.5.4.7 Analyze the structure (sentence, paragraph, chapter, or section) an author uses to organize a text including how it fits into the overall structure of a text and contributes to the development of the ideas.	
R.5.4.8 Read and comprehend literature, including stories, dramas, and poetry, as well as nonfiction, for the current level, independently and proficiently.	

Writing Benchmarks, Performance Indicators and Sample Activities

Level 1, Grade Level 0.0-1.9

W.1 Readability/Accuracy: The student will develop and apply knowledge of the basic written English language.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.1.1.1 Recognize and copy letters and numbers.	Using a reference model (for either standard or D'Nealian manuscript), copy the twenty-six uppercase and twenty-six lowercase letters and write the numerals from 0 to 9.	Have students trace letters and numbers and then copy them.
W.1.1.2 From memory write the numerals from 0 to 20.	From memory, write the numerals from zero to twenty in sequence without prompts.	Have students fill in the dates in a calendar for each month which would give them practice with the numbers 1-31.
W.1.1.3 From memory write the 26 uppercase and 26 lowercase letters.	From memory, write the twenty-six uppercase and twenty-six lowercase letters of the manuscript alphabet in sequence.	Have students write letters as the instructors calls them out.
W.1.1.4 Write personal information and dates on a form.	Write personal information (name, age, address, phone number, date of birth) and dates (words, abbreviations, and numbers) accurately on a simple form.	Have students complete simple forms using imaginary/sample information, i.e., create a person, which could later be used as the main character in a story. Have students design a calling card or business card.
W.1.1.5 Accurately space words to form simple sentences.	Write from dictation or copy at least three simple sentences correctly spacing words to form sentences.	Have students copy or write from dictation instructor created paragraphs based on current events.

W.2 Capitalization, Punctuation, and Spelling: The student will develop and apply knowledge of the rules for capitalization, punctuation, and spelling to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.2.1.1 Correctly capitalize simple sentences.	Edit the beginnings of at least five sentences for correct capitalization.	Copy simple sentences from a real-life text leaving out the capital letters. Have students circle all words that should begin with a capital.
W.2.1.2 Correctly capitalize the pronoun "I."	Edit at least five sentences for correct capitalization of the pronoun "I."	Ask students to dictate a sentence to you about something they did yesterday. Write the sentences on the board (or a piece of paper for one-on-one) without capitalization, then have students make corrections.
W.2.1.3 Capitalize proper nouns, e.g., names, titles, places, and abbreviations.	Edit twenty proper nouns including names, titles, places, and abbreviations for capitalization.	Have students role-play with mock phone messages, one being the assistant taking the message while the other is leaving the message. Messages should include: names, titles, places, and abbreviations that would need to be capitalized.
W.2.1.4 Distinguish between declarative, imperative, interrogative, and exclamatory sentences when presented orally by the instructor.	Identify ten sentences when read by the instructor as either "telling" (declarative), "commanding" (imperative), "questioning" (interrogative), or "exclaiming" (exclamatory).	Record different types of sentences on a tape recorder or computer so students can listen to the sentence and then identify the type.
W.2.1.5 Correctly punctuate simple sentences with end punctuation including periods, question marks, and exclamation points.	Correctly punctuate at least ten simple sentences with end punctuation for declarative, interrogative, exclamatory, and imperative sentences.	Have student provide the punctuation in an grade level text missing punctuation.
W.2.1.6 Correctly punctuate abbreviations of common titles.	Correctly punctuate at least ten sentences with abbreviations of titles such as Mr., Mrs., Dr., Jr., Sr., and any other titles that are commonly used when addressing people.	Have students practice writing notes inviting someone to an upcoming event.

W.2.1.7 Correctly punctuate dates within sentences.	Complete five simple sentences that include dates relevant to the student, i.e., My birthday is …, I got married on …, etc.	Have students correctly punctuate a paragraph (with dates and abbreviations) about a historical event.
W.2.1.8 Spell 98% of the words on the preprimer Dolch word list.	Correctly spell 98% of the words on the preprimer Dolch word list.	Have students write the words as they are read aloud by the instructor.

W.3 Grammatical Concepts/Sentence Structure: The student will develop and apply knowledge of grammatical concepts and sentence structure to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.3.1.1 Identify the differences between singular and plural nouns and pronouns.	Identify by matching, labeling, or copying the singular and plural nouns and pronouns in at least ten sentences.	Have a variety of real-life reading materials for students to use. Students will find either the singular or plural of a word and then rewrite the sentence changing the word (if singular, make it plural or if plural, make it singular) being sure the sentence is correct.
W.3.1.2 Use personal, possessive and infinite pronouns.	Identify personal, possessive, and infinite pronouns from a given list.	Give students different pronouns written on cards and ask students to sort according to categories of personal, possessive, and indefinite pronouns.
W.3.1.3 Identify the simple subject and simple predicate in a simple sentence.	Identify the simple subject and the simple predicate in at least ten simple sentences.	Create a list of increasing word sentences for students to identify the subject and predicate, i.e., “Babies cry.” Or “We bought groceries.”
W.3.1.4 Identify proper subject and verb agreement in a sentence.	Identify simple subject and verb agreement in at least ten written sentences.	Make a list of sentences that have common errors you have heard students using in conversation. Discuss what would need to be changed to make the sentence proper.
W.3.1.5 Write related sentences using correct capitalization, punctuation, and grammar.	Compose at least three related simple sentences that are correctly capitalized, punctuated, and grammatically correct.	Have students practice writing phone messages and/or notes to child’s teacher.

W.4 Parts of Speech, Verb Tense, and Usage: The student will apply knowledge of parts of speech, verb tense, and usage to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.4.1.1 Identify and distinguish between nouns, pronouns, and verbs in simple sentences.	Identify the nouns, pronouns, and verbs in at least ten simple sentences.	Have students identify nouns, pronouns, and verbs in a short news article. Then have students write a few sentences about a person that does something, replacing the proper names with pronouns.
W.4.1.2 Distinguish between past and present tense in sentences.	Identify past and present tense in at least ten simple sentences.	Have students write a short story about an embarrassing moment that they have had in the past and then write about the same embarrassing moment as if it is happening right now. Discuss the difference between past and present.
W.4.1.3 Compose simple sentences in both present and past tense.	Compose at least three simple, original sentences in the present tense and at least three in the past tense.	

W.5 Composition: The student will develop and apply the writing process to communicate in writing for a variety of purposes.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.5.1.1 Use a combination of drawing, dictating, and writing to compose informative or explanatory texts in which they name a topic, provide some facts, and provide some sense of closure.	Write a script for an infomercial, advertising a new product.	Students will create a new product/invention in groups of 2-4. Students will make brochures/posters to advertise product, and present product to class in infomercial style – script of infomercial to persuade other students.
W.5.1.2 Use a combination of drawing, dictating, and writing to narrate an event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.	Students will write three sentences for each event. Students will develop a rough draft for each event.	Given a picture, pairs of students will write three sentences per event describing before, during, and after.
W.5.1.3 Focus on a topic, respond to questions and suggestions from peers and add details to strengthen writing as needed.	Student will generate an outline using suggestions from classmates.	Student will go to the board, write their topic and brainstorm with suggestions from classmates to help formulate their outline.
W.5.1.4 Recall information from experiences or gather information from provided sources to answer a question.	Students will be able to answer a question about a topic by using a web search.	Students are asked to write five sentences to explain what is their favorite holiday and why using information gathered from a web search.
W.5.1.5 Use a variety of digital tools to produce and publish writing, including in collaboration with peers.	Students will produce and publish a story.	Publish a book of student writings, poems, favorite recipes, etc.

Writing Benchmarks, Performance Indicators and Sample Activities

Level 2, Grade Level 2.0-3.9

W.1 Readability/Accuracy: The student will develop and apply knowledge of the basic written English language.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.1.2.1 Write short sentences from memory and dictation.	Correctly write from dictation at least five simple sentences which use phonetically regular words or words from high frequency word lists for Levels 1 and 2.	Have students copy or write from dictation instructor created paragraphs based on current events.
W.1.2.2 Recognize and copy both capital and lowercase cursive letters of the alphabet.	Using a reference model (for either standard or D'Nealian cursive), copy the twenty-six capital and twenty-six lowercase cursive letters of the alphabet.	Have students trace letters and numerals and then copy them. Select a short passage from a text or newspaper and have students write it using cursive writing.
W.1.2.3 Recognize and write common symbols and abbreviations.	Identify and write ten common symbols (e.g., +, –, =, @, #, $, %, &, ÷, ©, etc.) and identify the meaning of common abbreviations found on forms (e.g., St. for street, SSN for Social Security Number, etc.)	Have students identify the symbols used on a keyboard above the numerals 0-9 and discuss how they are used in daily life.
W.1.2.4 Write words identifying objects in the classroom, home, or workplace.	Label the objects in at least two pictures using correct spacing between letters and words to make them clear and readable.	Use pictures from the home, workplace, or community. Have students plan and write a grocery list or a "to do" list.
W.1.2.5 Write short sentences from memory and dictation.	Correctly write from dictation at least five simple sentences which use phonetically regular words or words from high frequency word lists for Levels 1 and 2.	Have students copy or write from dictation instructor created paragraphs based on current events.

W.2 Capitalization, Punctuation and Spelling: The student will develop and apply knowledge of the rules for capitalization, punctuation, and spelling to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.2.2.1 Capitalize the inside address, salutation, and closing of personal and business letters.	Capitalize the inside address, greeting (salutation), and closing of one personal and one business letter.	Have students practice with personal and business letters.
W.2.2.2 Capitalize proper nouns including days of the week, months of the year, holidays, continents, countries, states, and cities.	Use capitalization correctly for proper nouns to write a party invitation that includes the title of the event, date of the event (month, day, year), and location.	Have students fill out a form asking for specific information, i.e., What is the best day of the week for you to go grocery shopping?, What is your favorite month of the year?, List the birthdates of your children, grandchildren, siblings? List three countries or cities you would like to visit?
W.2.2.3 Spell the months of the year, days of the week, and numbers from 1 to 121.	Correctly spell the months of the year, days of the week, and numbers from one to one hundred twenty-one.	Have students copy or write from dictation instructor created paragraphs based on current events.
W.2.2.4 Spell 98% of the words on the preprimer through third grade list on the Dolch word list.	Correctly spell 98% of the words on the preprimer through third grade list on the Dolch word list.	Have students trace letters and numerals and then copy them. Select a short passage from a text or newspaper and have students write it using cursive writing.
W.2.2.5 Use commas to correctly punctuate items in a series, dates, and addresses.	Use commas to correctly punctuate at least ten sentences with items in a series, in dates, and in addresses.	Have students write a letter to a family member or friend to tell them about a recent trip (real or imaginary).
W.2.2.6 Use commas to correctly punctuate the salutation and closing of a personal letter.	Use commas to correctly punctuate the salutation and closing of a personal letter.	Using a word document in the computer, have each student write a letter to a friend using correct punctuation in the salutation and closing.
W.2.2.7 Use apostrophes to form contractions and show possession	Use apostrophes to form common contractions in at least ten sentences and to show possession in at least ten sentences.	Have students write about themselves and their families using contractions and possessives, i.e., My name is __, I'm __,

W.3 Grammatical Concepts/Sentence Structure: The student will develop and apply knowledge of grammatical concepts and sentence structure to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.3.2.1 Correctly indent paragraphs.	Write three short paragraphs using proper indentation.	Have students write a summary of the day's news or the day's classroom activities.
W.3.2.2 Use irregular plural forms of nouns correctly.	Compose at least five sentences using irregular plural forms of nouns correctly.	Have students identify irregular plural forms of nouns in a magazine or newspaper article. Have students write an essay demonstrating the correct use of irregular plural forms of nouns.
W.3.2.3 Identify and use objective and demonstrative pronouns.	Use objective and demonstrative pronouns in at least ten sentences.	Using objects in the classroom, have students write sentences describing which items belong to which person or persons.
W.3.2.4 Identify and use modifiers in sentences.	Compose at least ten sentences which properly use modifiers (adjectives, possessive adjectives, and adverbs).	Have students make a poster or write a newspaper classified advertisement to describe a lost or found pet.
W.3.2.5 Change fragments and run-ons to complete sentences.	Rewrite fragments and run-ons to make at least ten complete sentences.	Create a paragraph with fragments and run-ons using information from a brochure, newspaper, etc. Have students rewrite and make corrections.
W.3.2.6 Combine simple sentences to form compound sentence using commas and conjunctions.	Combine a minimum of ten simple sentences to form five compound sentences using commas and conjunctions as needed.	Create a paragraph (using text from a magazine story) with very simple sentences and have students rewrite to form compound sentences using commas and conjunctions.

W.4 Parts of Speech, Verb Tense, and Usage: The student will apply knowledge of parts of speech, verb tense, and usage to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.4.2.1 Correctly identify the singular and plural forms of nouns.	Identify correct use of singular and plural form of nouns in at least ten simple sentences.	Using a newspaper, have the students circle the singular and plural nouns.
W.4.2.2 Distinguish between correct use of verbs in affirmative and negative forms in simple sentences.	Compose at least three simple, original sentences using verbs in the affirmative and at least three using verbs in the negative.	Give students sentences they might use in a note to a teacher using either affirmative or negative form and have them change the sentence to the opposite form. For example: My child will be able to go on the field trip. My child will not be able to go on the field trip. Have students write a paragraph responding to an instructor's created invitation.
W.4.2.3 Identify the appropriate forms of common regular and irregular verbs.	Identify the correct form of regular verbs (walk, want, etc.) and irregular verbs (swim, bring, dive, take, etc.) in at least ten sentences.	Write a work-related memo at an appropriate reading level and have students choose the correct verb to use in each sentence.
W.4.2.4 Make pronouns and antecedents agree in number and gender.	Make pronouns and their antecedents agree in number and gender when used in at least ten sentences.	Read children's books to locate the irregular and plural forms of nouns.

W.5 Composition: The student will develop and apply the writing process to communicate in writing for a variety of purposes.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.5.2.1 Write informative or explanatory text in which they introduce a topic, use facts and definitions to develop points, use linking words and phrases to connect ideas with categories of information, and provide a concluding statement or section.	Write an informative or explanatory text on a given topic.	Examine informative and explanatory texts from real world materials (newspapers, magazines, etc.) and identify the topic, facts used to develop points, linking words and phrases, and conclusion.
W.5.2.2 Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.	Write a story in first person narrative form.	Students are given an emergency/crime scene photo and must write a story detailing what happened. Student is the only witness of the event.
W.5.2.3 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons and provide a concluding statement for section.	Write a summary about an enduring issue in a periodical/newspaper or on video. State an opinion with supporting evidence.	Students will watch a video or read an article on gun control. Students will then summarize the video or periodical and take a side that is supported with evidence. Students can participate in an in-class debate on the topic.
W.5.2.4 Gather information from print and digital resources; take brief notes on sources and sort evidence into provided categories.	Given print resources, have student make notes on sources and sort evidence into provided categories.	Have students research real world texts (print and digital resources) on a given topic, take notes, cite sources and sort the evidence from each source.
W.5.2.5 Use technology to produce and publish writing as well as interact and collaborate with others.	Use a computer to type a business or personal letter with proper format, capitalization and punctuation.	Using a word document, the student will write a cover letter to be included with his resume for a job. The student would then email the letter to another student as an attachment for the other student to read and edit.
W.5.2.6 Conduct short research projects that build knowledge about a topic.	Student will be able to research a given topic and communicate at least four facts from their research.	Have student work in pairs or groups to research current events and report on the information they found.
W.5.2.7 Produce writing in which the development and organization are appropriate to task and purpose.	Identify the steps, in order, for completing a task. Use chronological order.	Students will write a “step by step” how to for a task or chore. For example: List steps on how to bake a cake. Incorporate demonstrations when possible Build on this with speaking/listening or, at a later time, a “how to” essay.
W.5.2.8 Develop and strengthen writing as needed by planning, revising, and editing.	Clearly and concisely convey an event. What is important? What can be left out? Examples: trip, vacation, concert, accident	Students will plan the story of the event in detail – then revise/edit. What do you need to know? What can you leave out? The purpose is to relay the necessary information to the reader without being too “wordy,” using correct words and not sharing pointless details.

Writing Benchmarks, Performance Indicators and Sample Activities

Level 3, Grade Level 4.0-5.9

W.2 Capitalization, Punctuation, and Spelling: The student will develop and apply knowledge of the rules for capitalization, punctuation, and spelling to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.2.3.1 Capitalize titles of books, magazines, poems, songs, television shows, movies, etc.	Write a review of a book, movie, or television show using correct capitalization.	Create a list of popular books, songs, movies, television shows, etc. without using capitalization and then have students edit the list.
W.2.3.2 Correctly use commas in writing, e.g. conjunction in complex sentences, set of proper names in direct address, set off an appositive, etc.	Correctly use commas to punctuate at least five complex sentences that include proper names in direct addresses and appositives.	Have students write a dialogue based on a conversation heard at an event they recently attended. Have students identify complex sentences with appositives from real world texts.

W.3 Grammatical Concepts/Sentence Structure: The student will develop and apply knowledge of grammatical concepts and sentence structure to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.3.3.1 Identify complete subjects and complete predicates in sentences.	Identify the complete subject and complete predicate in at least ten sentences provided by the instructor.	Have students identify complete subjects and complete predicates found in something they have previously written or newspaper article.
W.3.3.2 Identify compound subjects and predicates in sentences.	Identify the compound subject and predicate in at least ten sentences provided by the instructor.	Have students identify compound subjects and predicates found in a essays they have written previously, short magazine or newspaper article, brochure, technical manual, etc. Give students sentences with simple subjects and predicates and have them change to compound subjects and/or predicates.
W.3.3.3 Identify the understood subject of a command.	Write ten sentences in command form and identify the understood subject.	Using sentences with nouns of direct address and proper nouns, have students identify which are commands and which are declarative sentences.
W.3.3.4 Identify phrases and independent clauses.	Identify at least five phrases or clauses in a paragraph provided by the instructor.	Cut up sentences that contain various phrases, clauses and conjunctions. Have students construct sentences in a variety of ways while maintaining the meaning using correct punctuation and conjunctions.

W.4 Parts of Speech, Verb Tense, and Usage: The student will apply knowledge of parts of speech, verb tense, and usage to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.4.3.1 Identify nouns, verbs, pronouns, adjectives, adverbs, conjunctions, prepositions, and interjections.	Identify the parts of speech in a paragraph with 4-5 sentences.	On different days have students highlight a different part of speech in short newspaper or magazine articles.
W.4.3.2 Write the appropriate forms of common regular and irregular verbs, past, present, and past participle.	Write a short essay that contains examples of the appropriate forms of common regular and irregular verbs, past, present, and past participle.	Make a Concentration game with a pre-selected list of verbs (regular and irregular). Have the students match the verbs with the past, present, and past participle of the word. Have students write paragraphs making sure to keep the tenses the same throughout the writing.

W.4.3.3 Distinguish present tense, past tense, and future tense of common verbs.	Write proper tense of verbs in at least two paragraphs.	Students proofread and edit essays for the correct verb tense. If comfortable, they can exchange papers and proofread and edit each other's essays.
W.4.3.4 Correctly use the nominative and objective cases of pronouns, i.e., she/her.	Compose at least ten sentences correctly using the nominative and objective cases of pronouns.	Have students identify the nominative and objective cases of pronouns used in a short magazine or newspaper article.

W.5 Composition: The student will develop and apply the writing process to communicate in writing for a variety of purposes.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.5.3.1 Write informative and explanatory texts to examine a topic and convey ideas and information clearly. The text should: a) Introduce the topic clearly, group related information in paragraphs and sections, and include formatting, illustrations and multimedia when useful to aid comprehension; b) Develop the topic with facts, definitions, concrete details, quotations, or other information and examples; c) Link ideas within categories of information using words and phrases (e.g., another, for example, also, because) and use precise language and domain-specific vocabulary to inform about or explain the topic; and d) Provide a concluding statement or section related to the information/explanation presented.	Write an informative or explanatory text that examines a topic and conveys ideas and information clearly as outlined in benchmarks W.5.3.1a-e.	Examine real world text to identify if it is an informative text and how well it meets the guidelines of benchmarks W.5.3.1a-e. Explain how well it meets or does not meet the guidelines. If it does not meet the guidelines, what would you do to improve it. Use graphic organizer to conduct a character study from a real world text. Write a newspaper article for a given topic by gathering facts and citing sources. Have students view news video and read news story on same topic. Discuss main idea of story and differences in the two ways the story is presented.
W.5.3.2 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear even sequences. The narratives should: a) Orient the reader by establishing a situation and introducing a narrator and/or characters and organize an event sequence that unfolds naturally; b) Use dialogue and description to develop experiences and events or show the responses of characters to situations; c) Use a variety of transitional words and phrases to manage the sequence of events; d) Use concrete words and phrases and sensory details to convey experiences and events precisely; and e) Provide a conclusion that follows from the narrated experiences or events.	Write a narrative that develops real or imagined experiences or events using effective techniques and clearly demonstrates the information as outlined in benchmarks W.5.3.2a-f.	Examine real world narratives to determine how well the narrative meets the criteria outlined in this benchmark. Explain how it does or does not meet the criteria. If it does not meet the criteria, what could you do to improve the text. Provide a short story written without descriptive details and out of sequence. Have students rewrite to order the events and using descriptive words. Have students find an example of where dialogue and/or descriptions were used to develop experiences and events from magazines, books or newspaper. Given a real world narrative have students use a highlighter to mark concrete words and phrases and then a different color to mark sensory words. Give students a story without the conclusion. Have students write a conclusion.

W.5.3.3 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. the pieces should: a) Introduce a topic or text, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose; b) Provide logical reasons that are supported by facts/details; c) Link opinion and reasons using words, clauses, and phrases (e.g., for instance, in order to, in addition, consequently, specifically); and d) Provide a concluding statement or section related to the opinion presented.	Write an opinion piece on a given topic that meets the criteria outlined in benchmarks W.5.3.3a-e.	Examine real world opinion texts to determine how well they meet the criteria as outlined in W.5.3.3a-e. Explain how it does or does not meet the criteria. If it does not meet the criteria, what could you do to improve the text? Have students read a quote from President Kennedy's 1961 Inaugural Address, "Ask not what your country can do for you but what you can do for your country." Ask students to describe what President Kennedy meant by this statement and why he made this comment. Have students state/write about their position on a current government event (gun control) or newspaper editorial and justify why they took that position.
W.5.3.4 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.	Write a summary from information given.	Write a one-sentence summary. Ex: The article begins with _____, continues discussing _____, and ends with saying _____.
W.5.3.5 Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	Work as part of a team to produce and publish a writing.	Create and perform a play based on a visit to a museum, historical sight, or city.
W.5.3.6 Conduct short research projects that use several sources to build knowledge through investigation or different aspects of a topic.	Create a timed, typed document with several documented resources.	Research a historical issue, event, or person.
W.5.3.7 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.	Create/write a persuasive essay.	Give a debate topic: Should middle-school students be allowed to go to the mall unsupervised? Should ten year olds have a cell phone?
W.5.3.8 Draw evidence from literary or information texts to support analysis, reflection, and research. The evidence should: a) Compare and contract two or more characters, settings, or events in a story or a drama, drawing on specific details in the text (e.g., how the characters interacted); b) Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which points(s);	Students will be able to make a hypothesis and document proof.	State hypothesis, conduct research, document hypothesis Have student complete Venn diagrams to compare and contrast characters, people, or events.
5.3.9 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	Editing for conventions should demonstrate command of other writing standards.	Make corrections on articles from newspaper or magazine.

Writing Benchmarks, Performance Indicators and Sample Activities

Level 4, Grade Level 6.0-8.9

W.2 Capitalization, Punctuation, and Spelling: The student will develop and apply knowledge of the rules for capitalization, punctuation, and spelling to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.2.4.1 Appropriately use all forms of capitalization and punctuation including colons, semicolon, commas, dashes, and end punctuation.	Proofread and rewrite a business letter correctly using all forms of capitalization and punctuation.	Students write a letter of application for a job advertised in the classified ads.
W.2.4.2 Correctly spell all words in a written text.	Write a paragraph where all words are spelled correctly.	Supply students with incorrectly spelled literature. Have them identify and correct the misspelled words in the passage.

W.3 Grammatical Concepts/Sentence Structure: The student will develop and apply knowledge of grammatical concepts and sentence structure to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.3.4.1 Recognize how parts of a sentence are used to manipulate meaning in sentences (independent clauses, introductory clauses, and phrases, etc.).	Use sentence parts to manipulate emphasis or meaning in ten or more sentences.	Provide articles from magazines, newspapers or other real world documents and discuss with students how parts of some of the sentences are used to manipulate meaning in sentences. Give students basic subject and predicate. Have students expand meaning. For example, change “The big truck is in the parking lot.” to “The cherry red truck with various forms of technology inside is parked in the student parking lot.”
W.3.4.2 Write paragraphs with stated or implied topic sentences.	Write one paragraph with a stated topic sentence and one paragraph with an implied topic sentence.	Given a topic, students will write two paragraphs – one with the topic stated and one where topic is implied.
W.3.4.3 Write paragraphs with clear connections and transitions between sentences.	Write an essay or report with clear connections and transitions between sentences.	Using a graphic organizer, students will identify connectors and transitions in an essay.
W.3.4.4 Develop appropriate tense use throughout a multiple paragraph text.	Use the appropriate tense throughout a multiple paragraph text.	Have students write a past-tense, present-tense, or future-tense biography, i.e. I was …, I am …, I will ... Have students write a story about someone receiving and giving gifts.
W.3.4.5 Sustain a consistent point of view throughout a multiple paragraph text.	Use the same point of view throughout a multiple paragraph text.	Have students write a persuasive essay convincing someone to hire them or convincing someone to buy a product. Using an opinion article from a newspaper, have the students circle the identifying text showing consistent point of view. Use reading passages that abruptly change points of view. Identify parts of a passage that show a change in point of view.

W.4 Parts of Speech, Verb Tense, and Usage: The student will apply knowledge of parts of speech, verb tense, and usage to complete a variety of writing tasks.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.4.4.1 Identify all parts of speech, including nouns, verbs, adjectives, adverbs, conjunctions, prepositions, interjections, and verbals (verbs used as nouns, adjectives, or adverbs such as infinitives, participles, and gerunds).	Identify all parts of speech in at least one writing sample.	Locate examples of the listed parts of speech in an article. Identify all parts of speech by placing them in the correct categories, which will be provided. For example, students are given a list of mixed-up words and they are to place each word in the correct category.
W.4.4.2 Identify how parts of speech work in a particular sentence, i.e., noun used as an object instead of a subject.	Identify how the parts of speech work in at least five sentences.	Have students discuss the function of words in sentences they find in a current newspaper or magazine.
W.4.4.3 Identify passive voice (for example: Passive=The man was bitten by the dog. Active =The dog bit the man).	Use instructor provided text to identify tense and then rewrite using a different tense.	Locate examples of active and passive voice in an article. Change all active voice sentences (that have a direct object) to passive voice. Discuss how the writing changes.
W.4.4.4 Demonstrate mastery of past and present tense.	Correctly apply past and present tenses for regular and irregular verbs in a minimum of twenty sentences.	Have students write a story about something they did as a child and how they feel about it now.
W.4.4.5 Establish and maintain tense in a writing piece.	Write an essay where the proper tense is established and maintained throughout the essay.	Have students write a story about a person describing an unusual experience.

W.5 Composition: The student will develop and apply the writing process to communicate in writing for a variety of purposes.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
W.5.4.1 Write informative and explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. The texts should: a) Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect, include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aid comprehension; b) Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples; c) Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts; d) Use precise language and domain-specific vocabulary to inform about or explain the topic. e) Establish and maintain style; and f) Provide a concluding statement or section that follows from and supports the information or explanation presented.	Write informative and explanatory texts that meet the benchmark requirements.	Discuss if and how the essay/article meets this benchmarks. Have students research and identify informative and explanatory text from real-life that they consider to be a excellent example that meets all the benchmarks and then at least one that they consider not to meet all the benchmarks. Identify why the article does or does not meet the benchmark requirements.

W.5.4.2 Write arguments to support claims with clear reasons and relevant evidence. The argument should: a) Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically; b) Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text; c) Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence; d) Establish and maintain a formal style; and e) Provide a concluding statement or section that follows from and supports the argument presented.	Create a persuasive essay with response from secondary person that meets the outlined requirements for this benchmark.	Use a graphic organizer to create a persuasive essay based on real world event that meets the requirements for this benchmarks. Students will write a response supporting or acknowledging an opposing view. Have students identify real world articles that are persuasive essays.
W.5.4.3 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	Students will write, edit and reverse a paragraph, changing approach for their audience. Note: Editing for conventions should demonstrate other writing standards.	Given a topic, students will write a paragraph aimed at a particular audience and edit and rewrite for a difference audience. For example, write something aimed for an adult audience and then rewrite it for a preteen audience. Ex: The benefits of having a dress code.
W.5.4.4 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	Students will paraphrase several articles on a subject with out plagiarizing. Students will also create a citation page from their resources.	After researching a selected topic, the student will paraphrase in a paragraph what is discussed. Students will also create citation page.
W.5.4.5 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.	Given a particular subject to address – students will produce and publish a short essay on the subject and debate the information in their essay with peers.	Write a response to an article in an online forum. Create a blog post and then publish it on the blog.
W.5.4.6 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.	After being presented a question, students will be able to research online, from a variety of sources, answers to the question. As they research they will generate related questions and answers.	Give the students a list of questions. Let them pick one to research and answer. For example: What is a good way to determine the right pet for your family?
W.5.4.7 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Write a clear and coherent response when given a prompt that identifies the topic, task, purpose and audience.	Have students discuss texts written for different tasks, purposes and audiences. What changes would they make if they were writing for a different audience or for a different purpose?
W.5.4.8 Draw evidence from literary or informational texts to support analysis, reflection, and research by applying reading standards to literature and literary nonfiction.	Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments Analyze how a text makes connections among and distinctions between individuals' ideas or events.	Use real world newspaper or magazine articles or poems to determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

Level 1: Student Writing Checklist **Name** _____

W.1 Readability/Accuracy	**Date**
W.1.1.1 Recognize and copy letters and numbers.	
W.1.1.2 From memory write the numerals from 0 to 20.	
W.1.1.3 From memory write the 26 uppercase and 26 lowercase letters.	
W.1.1.4 Write personal information and dates on a form.	
W.1.1.5 Accurately space words to form simple sentences.	
W.2 Capitalization, Punctuation, and Spelling	**Date**
W.2.1.1 Correctly capitalize simple sentences.	
W.2.1.2 Correctly capitalize the pronoun "I."	
W.2.1.3 Capitalize proper nouns, e.g., names, titles, places, and abbreviations.	
W.2.1.4 Distinguish between declarative, imperative, interrogative, and exclamatory sentences when presented orally by the instructor.	
W.2.1.5 Correctly punctuate simple sentences with end punctuation including periods, question marks, and exclamation points.	
W.2.1.6 Correctly punctuate abbreviations of common titles.	
W.2.1.7 Correctly punctuate dates within sentences.	
W.2.1.8 Spell 98% of the words on the preprimer Dolch word list.	
W.3 Grammatical Concepts/Sentence Structure	**Date**
W.3.1.1 Identify the differences between singular and plural nouns and pronouns.	
W.3.1.2 Use personal, possessive and infinite pronouns.	
W.3.1.3 Identify the simple subject and simple predicate in a simple sentence.	
W.3.1.4 Identify proper subject and verb agreement in a sentence.	
W.3.1.5 Write related sentences using correct capitalization, punctuation, and grammar.	
W.4 Parts of Speech, Verb Tense, and Usage	**Date**
W.4.1.1 Identify and distinguish between nouns, pronouns, and verbs in simple sentences.	
W.4.1.2 Distinguish between past and present tense in sentences.	
W.4.1.3 Compose simple sentences in both present and past tense.	
W.5 Composition	**Date**
W.5.1.1 Use a combination of drawing, dictating, and writing to compose informative or explanatory texts in which they name a topic, provide some facts, and provide some sense of closure.	
W.5.1.2 Use a combination of drawing, dictating, and writing to narrate an event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.	
W.5.1.3 Focus on a topic, respond to questions and suggestions from peers and add details to strengthen writing as needed.	
W.5.1.4 Recall information from experiences or gather information from provided sources to answer a question.	
W.5.1.5 Use a variety of digital tools to produce and publish writing, including in collaboration with peers.	

Level 2: Student Writing Checklist **Name** _____

W.1 Readability/Accuracy	**Date**
W.1.2.1 Write short sentences from memory and dictation.	
W.1.2.2 Recognize and copy both capital and lowercase cursive letters of the alphabet.	
W.1.2.3 Recognize and write common symbols and abbreviations.	
W.1.2.4 Write words identifying objects in the classroom, home, or workplace.	
W.1.2.5 Write short sentences from memory and dictation.	
W.2 Capitalization, Punctuation, and Spelling	**Date**
W.2.2.1 Capitalize the inside address, salutation, and closing of personal and business letters.	
W.2.2.2 Capitalize proper nouns including days of the week, months of the year, holidays, continents, countries, states, and cities.	
W.2.2.3 Spell the months of the year, days of the week, and numbers from 1 to 121.	
W.2.2.4 Spell 98% of the words on the preprimer through third grade list on the Dolch word list.	
W.2.2.5 Use commas to correctly punctuate items in a series, dates, and addresses.	
W.2.2.6 Use commas to correctly punctuate the salutation and closing of a personal letter.	
W.2.2.7 Use apostrophes to form contractions and show possession	
W.3 Grammatical Concepts/ Sentence Structure	**Date**
W.3.2.1 Correctly indent paragraphs.	
W.3.2.2 Use irregular plural forms of nouns correctly.	
W.3.2.3 Identify and use objective and demonstrative pronouns.	
W.3.2.4 Identify and use modifiers in sentences.	
W.3.2.5 Change fragments and run-ons to complete sentences.	
W.3.2.6 Combine simple sentences to form compound sentences using commas and conjunctions.	
W.4 Parts of Speech, Verb Tense, and Usage	**Date**
W.4.2.1 Correctly identify the singular and plural forms of nouns.	
W.4.2.2 Distinguish between correct use of verbs in affirmative and negative forms in simple sentences.	
W.4.2.3 Identify the appropriate forms of common regular and irregular verbs.	
W.4.2.4 Make pronouns and antecedents agree in number and gender.	
W.5 Composition	**Date**
W.5.2.1 Write informative or explanatory text in which they introduce a topic, use facts and definitions to develop points, use linking words and phrases to connect ideas with categories of information, and provide a concluding statement or section.	
W.5.2.2 Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.	
W.5.2.3 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons and provide a concluding statement for section.	
W.5.2.4 Gather information from print and digital resources; take brief notes on sources and sort evidence into provided categories.	
W.5.2.5 Use technology to produce and publish writing as well as interact and collaborate with others.	
W.5.2.6 Conduct short research projects that build knowledge about a topic.	
W.5.2.7 Produce writing in which the development and organization are appropriate to task and purpose.	
W.5.2.8 Develop and strengthen writing as needed by planning, revising, and editing.	

Level 3: Student Writing Checklist **Name** _____

W.2 Capitalization, Punctuation, and Spelling	**Date**
W.2.3.1 Capitalize titles of books, magazines, poems, songs, television shows, movies, etc.	
W.2.3.2 Correctly use commas in writing, e.g. conjunction in complex sentences, set of proper names in direct address, set off an appositive, etc.	
W.3 Grammatical Concepts/ Sentence Structure	**Date**
W.3.3.1 Identify complete subjects and complete predicates in sentences.	
W.3.3.2 Identify compound subjects and predicates in sentences.	
W.3.3.3 Identify the understood subject of a command.	
W.3.3.4 Identify phrases and independent clauses.	
W.4 Parts of Speech, Verb Tense, and Usage	**Date**
W.4.3.1 Identify nouns, verbs, pronouns, adjectives, adverbs, conjunctions, prepositions, and interjections.	
W.4.3.2 Write the appropriate forms of common regular and irregular verbs, past, present, and past participle.	
W.4.3.3 Distinguish present tense, past tense, and future tense of common verbs.	
W.4.3.4 Correctly use the nominative and objective cases of pronouns, i.e., she/her.	
W.5 Composition	**Date**
W.5.3.1 Write informative and explanatory texts to examine a topic and convey ideas and information clearly. The text should: a) Introduce the topic clearly, group related information in paragraphs and sections, and include formatting, illustrations and multimedia when useful to aid comprehension; b) Develop the topic with facts, definitions, concrete details, quotations, or other information and examples; c) Link ideas within categories of information using words and phrases (e.g., another, for example, also, because) and use precise language and domain-specific vocabulary to inform about or explain the topic; and d) Provide a concluding statement or section related to the information/explanation presented.	
W.5.3.2 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear even sequences. The narratives should: a) Orient the reader by establishing a situation and introducing a narrator and/or characters and organize an event sequence that unfolds naturally; b) Use dialogue and description to develop experiences and events or show the responses of characters to situations; c) Use a variety of transitional words and phrases to manage the sequence of events; d) Use concrete words and phrases and sensory details to convey experiences and events precisely; and e) Provide a conclusion that follows from the narrated experiences or events.	
W.5.3.3 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. the pieces should: a) Introduce a topic or text, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose; b) Provide logical reasons that are supported by facts/details; c) Link opinion and reasons using words, clauses, and phrases (e.g., for instance, in order to, in addition, consequently, specifically); and d) Provide a concluding statement or section related to the opinion presented.	
W.5.3.4 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.	
W.5.3.5 Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	
W.5.3.6 Conduct short research projects that use several sources to build knowledge through investigation or different aspects of a topic.	
W.5.3.7 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.	
W.5.3.8 Draw evidence from literary or information texts to support analysis, reflection, and research. The evidence should: a) Compare and contract two or more characters, settings, or events in a story or a drama, drawing on specific details in the text (e.g., how the characters interacted); and b) Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which points(s);	
W.5.3.9 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	

Level 4: Student Writing Checklist **Name** _____

W.2 Capitalization, Punctuation, and Spelling	**Date**
W.2.4.1 Appropriately use all forms of capitalization and punctuation including colons, semicolon, commas, dashes, and end punctuation.	
W.2.4.2 Correctly spell all words in a written text.	
W.3 Grammatical Concepts/ Sentence Structure	**Date**
W.3.4.1 Recognize how parts of a sentence are used to manipulate meaning in sentences (independent clauses, introductory clauses, and phrases, etc.).	
W.3.4.2 Write paragraphs with stated or implied topic sentences.	
W.3.4.3 Write paragraphs with clear connections and transitions between sentences.	
W.3.4.4 Develop appropriate tense use throughout a multiple paragraph text.	
W.3.4.5 Sustain a consistent point of view throughout a multiple paragraph text.	
W.4 Parts of Speech, Verb Tense, and Usage	**Date**
W.4.4.1 Identify all parts of speech, including nouns, verbs, adjectives, adverbs, conjunctions, prepositions, interjections, and verbals (verbs used as nouns, adjectives, or adverbs such as infinitives, participles, and gerunds).	
W.4.4.2 Identify how parts of speech work in a particular sentence, i.e., noun used as an object instead of a subject.	
W.4.4.3 Identify passive voice (for example: Passive=The man was bitten by the dog. Active =The dog bit the man).	
W.4.4.4 Demonstrate mastery of past and present tense.	
W.4.4.5 Establish and maintain tense in a writing piece.	
W.5 Composition	**Date**
W.5.4.1 Write informative and explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. The texts should: a) Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect, include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aid comprehension; b) Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples; c) Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts; d) Use precise language and domain-specific vocabulary to inform about or explain the topic. e) Establish and maintain style; and f) Provide a concluding statement or section that follows from and supports the information or explanation presented.	
W.5.4.2 Write arguments to support claims with clear reasons and relevant evidence. The argument should: a) Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically; b) Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text; c) Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence; d) Establish and maintain a formal style; and e) Provide a concluding statement or section that follows from and supports the argument presented.	
W.5.4.3 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	
W.5.4.4 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	
W.5.4.5 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.	
W.5.4.6 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.	
W.5.4.7 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	
W.5.4.8 Draw evidence from literary or informational texts to support analysis, reflection, and research by applying reading standards to literature and literary nonfiction.	

Writing Level 1: Instructor Checklist

W.1 Readability/Accuracy	**Materials Used - Include specific activity, book, page number, etc.**
W.1.1.1 Recognize and copy letters and numbers.	
W.1.1.2 From memory write the numerals from 0 to 20.	
W.1.1.3 From memory write the 26 uppercase and 26 lowercase letters.	
W.1.1.4 Write personal information and dates on a form.	
W.1.1.5 Accurately space words to form simple sentences.	
W.2 Capitalization, Punctuation, and Spelling	**Materials Used - Include specific activity, book, page number, etc.**
W.2.1.1 Correctly capitalize simple sentences.	
W.2.1.2 Correctly capitalize the pronoun "I."	
W.2.1.3 Capitalize proper nouns, e.g., names, titles, places, and abbreviations.	
W.2.1.4 Distinguish between declarative, imperative, interrogative, and exclamatory sentences when presented orally by the instructor.	
W.2.1.5 Correctly punctuate simple sentences with end punctuation including periods, question marks, and exclamation points.	
W.2.1.6 Correctly punctuate abbreviations of common titles.	
W.2.1.7 Correctly punctuate dates within sentences.	
W.2.1.8 Spell 98% of the words on the preprimer Dolch word list.	
W.3 Grammatical Concepts/Sentence Structure	**Materials Used - Include specific activity, book, page number, etc.**
W.3.1.1 Identify the differences between singular and plural nouns and pronouns.	
W.3.1.2 Use personal, possessive and infinite pronouns.	
W.3.1.3 Identify the simple subject and simple predicate in a simple sentence.	
W.3.1.4 Identify proper subject and verb agreement in a sentence.	
W.3.1.5 Write related sentences using correct capitalization, punctuation, and grammar.	
W.4 Parts of Speech, Verb Tense, and Usage	**Materials Used - Include specific activity, book, page number, etc.**
W.4.1.1 Identify and distinguish between nouns, pronouns, and verbs in simple sentences.	
W.4.1.2 Distinguish between past and present tense in sentences.	
W.4.1.3 Compose simple sentences in both present and past tense.	
W.5 Composition	**Materials Used - Include specific activity, book, page number, etc.**
W.5.1.1 Use a combination of drawing, dictating, and writing to compose informative or explanatory texts in which they name a topic, provide some facts, and provide some sense of closure.	
W.5.1.2 Use a combination of drawing, dictating, and writing to narrate an event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.	
W.5.1.3 Focus on a topic, respond to questions and suggestions from peers and add details to strengthen writing as needed.	
W.5.1.4 Recall information from experiences or gather information from provided sources to answer a question.	
W.5.1.5 Use a variety of digital tools to produce and publish writing, including in collaboration with peers.	

Writing Level 2: Instructor Checklist

W.1 Readability/Accuracy	Materials Used - Include specific activity, book, page number, etc.
W.1.2.1 Write short sentences from memory and dictation.	
W.1.2.2 Recognize and copy both capital and lowercase cursive letters of the alphabet.	
W.1.2.3 Recognize and write common symbols and abbreviations.	
W.1.2.4 Write words identifying objects in the classroom, home, or workplace.	
W.1.2.5 Write short sentences from memory and dictation.	
W.2 Capitalization, Punctuation, and Spelling	**Materials Used - Include specific activity, book, page number, etc.**
W.2.2.1 Capitalize the inside address, salutation, and closing of personal and business letters.	
W.2.2.2 Capitalize proper nouns including days of the week, months of the year, holidays, continents, countries, states, and cities.	
W.2.2.3 Spell the months of the year, days of the week, and numbers from 1 to 121.	
W.2.2.4 Spell 98% of the words on the preprimer through third grade list on the Dolch word list.	
W.2.2.5 Use commas to correctly punctuate items in a series, dates, and addresses.	
W.2.2.6 Use commas to correctly punctuate the salutation and closing of a personal letter.	
W.2.2.7 Use apostrophes to form contractions and show possession	
W.3 Grammatical Concepts/ Sentence Structure	**Materials Used - Include specific activity, book, page number, etc.**
W.3.2.1 Correctly indent paragraphs.	
W.3.2.2 Use irregular plural forms of nouns correctly.	
W.3.2.3 Identify and use objective and demonstrative pronouns.	
W.3.2.4 Identify and use modifiers in sentences.	
W.3.2.5 Change fragments and run-ons to complete sentences.	
W.3.2.6 Combine simple sentences to form compound sentences using commas and conjunctions.	
W.4 Parts of Speech, Verb Tense, and Usage	**Materials Used - Include specific activity, book, page number, etc.**
W.4.2.1 Correctly identify the singular and plural forms of nouns.	
W.4.2.2 Distinguish between correct use of verbs in affirmative and negative forms in simple sentences.	
W.4.2.3 Identify the appropriate forms of common regular and irregular verbs.	
W.4.2.4 Make pronouns and antecedents agree in number and gender.	
W.5 Composition	**Materials Used - Include specific activity, book, page number, etc.**
W.5.2.1 Write informative or explanatory text in which they introduce a topic, use facts and definitions to develop points, use linking words and phrases to connect ideas with categories of information, and provide a concluding statement or section.	
W.5.2.2 Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.	
W.5.2.3 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons and provide a concluding statement for section.	
W.5.2.4 Gather information from print and digital resources; take brief notes on sources and sort evidence into provided categories.	
W.5.2.5 Use technology to produce and publish writing as well as interact and collaborate with others.	
W.5.2.6 Conduct short research projects that build knowledge about a topic.	
W.5.2.7 Produce writing in which the development and organization are appropriate to task and purpose.	
W.5.2.8 Develop and strengthen writing as needed by planning, revising, and editing.	

Writing Level 3: Instructor Checklist

W.2 Capitalization, Punctuation, and Spelling	**Materials Used - Include specific activity, book, page number, etc.**
W.2.3.1 Capitalize titles of books, magazines, poems, songs, television shows, movies, etc.	
W.2.3.2 Correctly use commas in writing, e.g. conjunction in complex sentences, set of proper names in direct address, set off an appositive, etc.	
W.3 Grammatical Concepts/ Sentence Structure	**Materials Used - Include specific activity, book, page number, etc.**
W.3.3.1 Identify complete subjects and complete predicates in sentences.	
W.3.3.2 Identify compound subjects and predicates in sentences.	
W.3.3.3 Identify the understood subject of a command.	
W.3.3.4 Identify phrases and independent clauses.	
W.4 Parts of Speech, Verb Tense, and Usage	**Materials Used - Include specific activity, book, page number, etc.**
W.4.3.1 Identify nouns, verbs, pronouns, adjectives, adverbs, conjunctions, prepositions, and interjections.	
W.4.3.2 Write the appropriate forms of common regular and irregular verbs, past, present, and past participle.	
W.4.3.3 Distinguish present tense, past tense, and future tense of common verbs.	
W.4.3.4 Correctly use the nominative and objective cases of pronouns, i.e., she/her.	
W.5 Composition	**Materials Used - Include specific activity, book, page number, etc.**
W.5.3.1 Write informative and explanatory texts to examine a topic and convey ideas and information clearly. The text should: a) Introduce the topic clearly, group related information in paragraphs and sections, and include formatting, illustrations and multimedia when useful to aid comprehension; b) Develop the topic with facts, definitions, concrete details, quotations, or other information and examples; c) Link ideas within categories of information using words and phrases and use precise language and domain-specific vocabulary to inform about or explain the topic; and d) Provide a concluding statement or section related to the information/ explanation presented.	
W.5.3.2 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear even sequences. The narratives should: a) Orient the reader by establishing a situation and introducing a narrator and/or characters and organize an event sequence that unfolds naturally; b) Use dialogue and description to develop experiences and events or show the responses of characters to situations; c) Use a variety of transitional words and phrases to manage the sequence of events; d) Use concrete words and phrases and sensory details to convey experiences and events precisely; and e) Provide a conclusion that follows from the narrated experiences or events.	
W.5.3.3 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. The pieces should: a) Introduce a topic or text, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose; b) Provide logical reasons that are supported by facts/details; c) Link opinion and reasons using words, clauses, and phrases and d) Provide a concluding statement or section related to the opinion presented.	
W.5.3.4 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.	
W.5.3.5 Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	
W.5.3.6 Conduct short research projects that use several sources to build knowledge through investigation or different aspects of a topic.	
W.5.3.7 Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.	
W.5.3.8 Draw evidence from literary or information texts to support analysis, reflection, and research. The evidence should: a) Compare and contract two or more characters, settings, or events in a story or a drama, drawing on specific details in the text; and b) Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which points(s);	
5.3.9 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	

Writing Level 4: Instructor Checklist

W.2 Capitalization, Punctuation, and Spelling	**Materials Used - Include specific activity, book, page number, etc.**
W.2.4.1 Appropriately use all forms of capitalization and punctuation.	
W.2.4.2 Correctly spell all words in a written text.	
W.3 Grammatical Concepts/ Sentence Structure	**Materials Used - Include specific activity, book, page number, etc.**
W.3.4.1 Recognize how parts of a sentence are used to manipulate meaning in sentences .	
W.3.4.2 Write paragraphs with stated or implied topic sentences.	
W.3.4.3 Write paragraphs with clear connections and transitions between sentences.	
W.3.4.4 Develop appropriate tense use throughout a multiple paragraph text.	
W.3.4.5 Sustain a consistent point of view throughout a multiple paragraph text.	
W.4 Parts of Speech, Verb Tense, and Usage	**Materials Used - Include specific activity, book, page number, etc.**
W.4.4.1 Identify all parts of speech, including nouns, verbs, adjectives, adverbs, conjunctions, prepositions, interjections, and verbals .	
W.4.4.2 Identify how parts of speech work in a particular sentence, i.e., noun used as an object instead of a subject.	
W.4.4.3 Identify passive voice.	
W.4.4.4 Demonstrate mastery of past and present tense.	
W.4.4.5 Establish and maintain tense in a writing piece.	
W.5 Composition	**Materials Used - Include specific activity, book, page number, etc.**
W.5.4.1 Write informative and explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. The texts should: a) Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect, include formatting, graphics, and multimedia when useful to aid comprehension; b) Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples; c) Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts; d) Use precise language and domain-specific vocabulary to inform about or explain the topic. e) Establish and maintain style; and f) Provide a concluding statement or section that follows from and supports the information or explanation presented.	
W.5.4.2 Write arguments to support claims with clear reasons and relevant evidence. The argument should: a) Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically; b) Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text; c) Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence; d) Establish and maintain a formal style; and e) Provide a concluding statement or section that follows from and supports the argument presented.	
W.5.4.3 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	
W.5.4.4 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	
W.5.4.5 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.	
W.5.4.6 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.	
W.5.4.7 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	
W.5.4.8 Draw evidence from literary or informational texts to support analysis, reflection, and research by applying reading standards to literature and literary nonfiction.	

Speaking and Listening Benchmarks, Performance Indicators, and Sample Activities

Level 1, Grade Level 0.0-1.9

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.1.1.1 Participate in collaborative conversations in small and larger groups.	Convey basic personal information.	Have students answer questions about name, community, family, etc.
S.1.1.2 Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).	Yes/No questionnaire consisting of 10 questions. Accuracy in using certain words.	Watch videos or other electronic media and identify whether people in them followed and agreed upon rules for discussions. Act out a role-play for both appropriate and inappropriate ways of leading/participating in a discussion.
S.1.1.3 Build on others' talk in conversations by responding to the comments of others through multiple exchanges.	Formal Assessment – word bank, phrase bank Putting these words back into the conversation and using with sufficient accuracy	Sentence building – one group has a part of the sentence and the other group completes the sentence with provided words.
S.1.1.4 Ask questions to clear up any confusion about the topics and texts under discussion.	Paraphrasing what students say to clarify possible confusion of discussion.	Paraphrase sentences to answer yes/no or true/false in small groups.
S.1.1.5 Demonstrate understanding of written texts presented orally by asking and answering questions about key details and restating key elements.	Write a paragraph or orally explain the purpose of a conversation.	Have students read their writing for classmates to obtain an opinion and confirm the purpose of conversation.
S.1.1.6 Ask and answer questions about what a speaker says in order to seek help, gather additional information or clarify something that is not understood.	Students will be able to ask simple questions to ask for help or seek clarification (ex: Could you repeat that?) Students will be able to properly use question words.	Use newspaper article or video clips about current events. Answer who, what, when, where, how and why questions. Assign a topic and assign students a report on the subject.

S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.2.1.1 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	Student will be able to describe an assigned person, place and event with relevant details.	Practice describing people from movies, books, leaders, local places, and events speaking audibly and expressing thoughts in complete sentences. Take a trip to a local historical site, museum or zoo or access an electronic field trip online and have students describe their experience. Add illustrations to clarify their thoughts.
S.2.1.2 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	Student will be able to add drawings or other visual display to clarify ideas, thoughts and/or feelings about an assigned topic, place, or event.	
S.2.1.3 Speak audibly and express thoughts, feelings, and ideas clearly. Produce complete sentences appropriate to task and situation.	Student is able to speak audibly and in complete sentences expressing thoughts, feelings and ideas clearly.	

Speaking and Listening Benchmarks, Performance Indicators, and Sample Activities

Level 2, Grade Level 2.0-3.9

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.1.2.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.	Student is able to join in class discussions effectively.	Have students discuss a topic of current events with emphasis on following rules for discussions, staying on topic, and linking their comments to the remarks of others..
S.1.2.2 Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).	Student is able to follow rules for discussions.	
S.1.2.3 Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.	Student is able to stay on topic and link their comments to the remarks of others.	
S.1.2.4 Explain their own ideas and understanding in light of the discussion	Student is able to relay information from an observed event and their opinion of that event.	Have students watch videos on different topics and then have students identify the main ideas and supporting details as well as explain their own ideas and understanding through class discussion.
S.1.2.5 Identify the main ideas and supporting details of written texts read aloud or information presented graphically, orally, visually, or multi-modally.	Student is able to identify at least one main idea and supporting details after hearing a text read aloud.	
S.1.2.6 Ask and answer questions about what a speaker says to clarify comprehension, gather additional information, or deepen understanding. Offer appropriate elaboration and detail about what a speaker says.	Elaborate and give details after listening to a short speech.	Invite speakers to class or watch webinar or online presentations to inform students on a topic of interest. Discuss understanding. Let students speak to the class on an assigned topic, then allow other students to ask questions about the topic.

S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.2.2.1 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	Student will be able to speak clearly at an understandable pace to report the appropriate facts or descriptive details on an assigned topic, story, or experience.	Practice reporting on current event topics, i.e., role-playing being a reporter on a story from the newspaper. Watch reports on videos.
S.2.2.2 Create engaging audio recordings of stories or poems that demonstrate fluent reading; add visual displays when appropriate to enhance certain facts or details	Student will be able to create one audio recording of a story or poem that demonstrate fluent reading.	Practice recording (audio/video) their reporting from S.2.2.1 and listen to it to determine how they could improve it.
S.2.2.3 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	Student will be able to speak audibly and in complete sentences to provide detail or clarification.	Ask questions about the reporting from S.2.2.1 and allow student to practice different responses. Discuss understanding, clarity of ideas, and strategies to improve response.

Speaking and Listening Benchmarks, Performance Indicators, and Sample Activities

Level 3, Grade Level 4.0-5.9

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.1.3.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups), building on others' ideas and expressing their own clearly.	Student is able to join in class discussions effectively.	Have students discuss a topic or current event with emphasis on following rules for discussions: staying on topic, and linking their comments to the remarks of others.
S.1.3.2 Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	Student comes to class prepared for discussion of assigned topics.	
S.1.3.3 Follow agreed-upon rules for discussions and carry out assigned roles.	Student is able to stay on topic and link their comments to the remarks of others.	
S.1.3.4 Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.	Student is able to ask and answer questions by making comments that contribute to discussions.	Have students watch video clips, short talks or other electronic media on different topics and then have them identify the main ideas and key supporting details.
S.1.3.5 Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.	Student is able to draw conclusions based on information gained from discussions.	
S.1.3.6 Summarize written texts read aloud or information presented graphically, orally, visually, or multimodally.	Student is able to summarize information presented.	Invite speakers, watch webinars or online presentations to inform students on a topic of interest. Allow students to discuss and ask questions about the topics. Let students speak to the class on an assigned topic, then allow other students to ask questions about the topic.
S.1.3.7 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.	Student is able to summarize points from a speaker (live or video) and explain how the points are supported by evidence from the speaker.	

S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.2.3.1 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	Student is able to report on a topic and present their opinion using at least one multimedia component.	Have students research topics and present their findings to the class, including their opinion on the topic. Practice using different types of multi-media to enhance the topics.
S.2.3.2 Use multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.		
S.2.3.3 Know contexts that call for formal (e.g., presenting ideas) versus informal (e.g., small-group discussion) English; use formal English when appropriate.	Student is able to use formal and informal English as appropriate.	Practice using both formal and informal English. Discuss and role play different scenarios using both formal and informal English.

Level 4, Grade Level 6.0-8.9
Speaking and Listening Benchmarks, Performance Indicators, and Sample Activities

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.1.4.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.	Student is able to join in class discussions effectively.	Have students discuss a topic of current events with emphasis on being prepared, referring to evidence from researched topic, and following rules set by peers.
S.1.4.2 Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence to probe and reflect on ideas under discussion.	Student comes to class prepared for discussion of assigned topics.	
S.1.4.3 Work with peers to set rules for discussions.	Student works with peers to set rules for discussion.	
S.1.4.4 Pose questions that connect the ideas of several speakers and elicit elaboration. Respond to others' questions and comments with relevant evidence, observations, and ideas.	Student is able to elaborate on comments and answer questions with relevant evidence, observations and ideas.	Have students watch videos, short talks or other electronic media on different topics identifying the main ideas and key supporting details. Have students explain their own ideas and understanding through class discussion. Have students practice with one asking questions about a topic and the other responding with an answer and then asking a follow-up question. Let students speak to the class on an assigned topic, then allow other students to ask questions about the topic.
S.1.4.5 Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.	Student is able to draw conclusions based on information gained from discussions.	
S.1.4.6 Analyze the main ideas and supporting details to determine the purpose of information in graphical, oral, visual, or multimodal formats; evaluate the motives (e.g., social, commercial, political) behind its presentation.	Student is able to summarize information presented and determine the motive behind its presentation.	Have students look at information presented in different formats (graphical, oral, visual, multimodal) and discuss the motives behind the different information presented.
S.1.4.7 Delineate a speaker's argument and specific claims, evaluating the validity of the reasoning and sufficiency of the evidence.	Student is able to summarize points from a speaker (live or video), explain how the points are supported by evidence from the speech, and determine if the reasoning is sufficient.	Have students listen to different speakers and evaluate the validity of the speakers reasoning and evidence.

S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.		
Benchmark	**Performance Indicator**	**Sample Activities with Real-Life Application**
S.2.4.1 Present claims and findings, emphasizing important points in a focused, coherent manner with relevant evidence, sound reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	Student is able to present their findings in a coherent manner with sound reasoning and details using appropriate eye contact, adequate volume and clear pronunciation.	In small groups, have students identify an item or vacation trip for future purchase, and then researches the best price through various forms of media and technology. After research and analysis, group would make a recommendation. Other research topics could include housing, job search, political candidates.
S.2.4.2 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.	Student is able to use multimedia in a presentation.	
S.2.4.3 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Student is able to adapt speech for assigned context, i.e, telling a friend about their day at work versus telling their supervisor how work went yesterday.	Allow student to role-play where they can practice adapting their speech to fit a variety of contexts and tasks.

Speaking and Listening Level 1: Student Checklist **Name: _____**

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Date**
S.1.1.1 Participate in collaborative conversations in small and larger groups.	
S.1.1.2 Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).	
S.1.1.3 Build on others' talk in conversations by responding to the comments of others through multiple exchanges.	
S.1.1.4 Ask questions to clear up any confusion about the topics and texts under discussion.	
S.1.1.5 Demonstrate understanding of written texts presented orally by asking and answering questions about key details and restating key elements.	
S.1.1.6 Ask and answer questions about what a speaker says in order to seek help, gather additional information or clarify something that is not understood.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Date**
S.2.1.1 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	
S.2.1.2 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	
S.2.1.3 Speak audibly and express thoughts, feelings, and ideas clearly. Produce complete sentences appropriate to task and situation.	

Speaking and Listening Level 2: Student Checklist **Name: _____**

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Date**
S.1.2.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.	
S.1.2.2 Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).	
S.1.2.3 Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.	
S.1.2.4 Explain their own ideas and understanding in light of the discussion	
S.1.2.5 Identify the main ideas and supporting details of written texts read aloud or information presented graphically, orally, visually, or multi-modally.	
S.1.2.6 Ask and answer questions about what a speaker says to clarify comprehension, gather additional information, or deepen understanding. Offer appropriate elaboration and detail about what a speaker says.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Date**
S.2.2.1 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	
S.2.2.2 Create engaging audio recordings of stories or poems that demonstrate fluent reading; add visual displays when appropriate to enhance certain facts or details.	
S.2.2.3 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	

Speaking and Listening Level 3: Student Checklist **Name: _____**

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Date**
S.1.3.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups), building on others' ideas and expressing their own clearly.	
S.1.3.2 Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	
S.1.3.3 Follow agreed-upon rules for discussions and carry out assigned roles.	
S.1.3.4 Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.	
S.1.3.5 Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.	
S.1.3.6 Summarize written texts read aloud or information presented graphically, orally, visually, or multimodally.	
S.1.3.7 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Date**
S.2.3.1 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	
S.2.3.2 Use multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.	
S.2.3.3 Know contexts that call for formal (e.g., presenting ideas) versus informal (e.g., small-group discussion) English; use formal English when appropriate.	

Speaking and Listening Level 4: Student Checklist **Name: _____**

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Date**
S.1.4.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.	
S.1.4.2 Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence to probe and reflect on ideas under discussion.	
S.1.4.3 Work with peers to set rules for discussions.	
S.1.4.4 Pose questions that connect the ideas of several speakers and elicit elaboration. Respond to others' questions and comments with relevant evidence, observations, and ideas.	
S.1.4.5 Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.	
S.1.4.6 Analyze the main ideas and supporting details to determine the purpose of information in graphical, oral, visual, or multimodal formats; evaluate the motives (e.g., social, commercial, political) behind its presentation.	
S.1.4.7 Delineate a speaker's argument and specific claims, evaluating the validity of the reasoning and sufficiency of the evidence.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Date**
S.2.4.1 Present claims and findings, emphasizing important points in a focused, coherent manner with relevant evidence, sound reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	
S.2.4.2 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.	
S.2.4.3 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	

Level 1: Speaking and Listening Instructor Checklist

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.1.1.1 Participate in collaborative conversations in small and larger groups.	
S.1.1.2 Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).	
S.1.1.3 Build on others' talk in conversations by responding to the comments of others through multiple exchanges.	
S.1.1.4 Ask questions to clear up any confusion about the topics and texts under discussion.	
S.1.1.5 Demonstrate understanding of written texts presented orally by asking and answering questions about key details and restating key elements.	
S.1.1.6 Ask and answer questions about what a speaker says in order to seek help, gather additional information or clarify something that is not understood.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.2.1.1 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	
S.2.1.2 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	
S.2.1.3 Speak audibly and express thoughts, feelings, and ideas clearly. Produce complete sentences appropriate to task and situation.	

Level 2: Speaking and Listening Instructor Checklist

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.1.2.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.	
S.1.2.2 Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).	
S.1.2.3 Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.	
S.1.2.4 Explain their own ideas and understanding in light of the discussion.	
S.1.2.5 Identify the main ideas and supporting details of written texts read aloud or information presented graphically, orally, visually, or multimodally.	
S.1.2.6 Ask and answer questions about what a speaker says to clarify comprehension, gather additional information, or deepen understanding. Offer appropriate elaboration and detail about what a speaker says.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.2.2.1 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	
S.2.2.2 Create engaging audio recordings of stories or poems that demonstrate fluent reading; add visual displays when appropriate to enhance certain facts or details.	
S.2.2.3 Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.	

Level 3: Speaking and Listening Instructor Checklist

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.1.3.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups), building on others' ideas and expressing their own clearly.	
S.1.3.2 Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	
S.1.3.3 Follow agreed-upon rules for discussions and carry out assigned roles.	
S.1.3.4 Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.	
S.1.3.5 Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.	
S.1.3.6 Summarize written texts read aloud or information presented graphically, orally, visually, or multimodally.	
S.1.3.7 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.2.3.1 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	
S.2.3.2 Use multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.	
S.2.3.3 Know contexts that call for formal (e.g., presenting ideas) versus informal (e.g., small-group discussion) English; use formal English when appropriate.	

Level 4: Speaking and Listening Instructor Checklist

S.1 Comprehension and Collaboration: The student will develop and apply skills to demonstrate comprehension and collaboration of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.1.4.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) building on others' ideas and expressing their own clearly.	
S.1.4.2 Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence to probe and reflect on ideas under discussion.	
S.1.4.3 Work with peers to set rules for discussions.	
S.1.4.4 Pose questions that connect the ideas of several speakers and elicit elaboration. Respond to others' questions and comments with relevant evidence, observations, and ideas.	
S.1.4.5 Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.	
S.1.4.6 Analyze the main ideas and supporting details to determine the purpose of information in graphical, oral, visual, or multimodal formats; evaluate the motives (e.g., social, commercial, political) behind its presentation.	
S.1.4.7 Delineate a speaker's argument and specific claims, evaluating the validity of the reasoning and sufficiency of the evidence.	
S.2 Presentation of Knowledge and Ideas: The student will develop and apply skills to demonstrate presentation of knowledge and ideas of oral and aural information.	
Benchmark	**Materials Used - Include specific activity, book, page number, etc.**
S.2.4.1 Present claims and findings, emphasizing important points in a focused, coherent manner with relevant evidence, sound reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	
S.2.4.2 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.	
S.2.4.3 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	

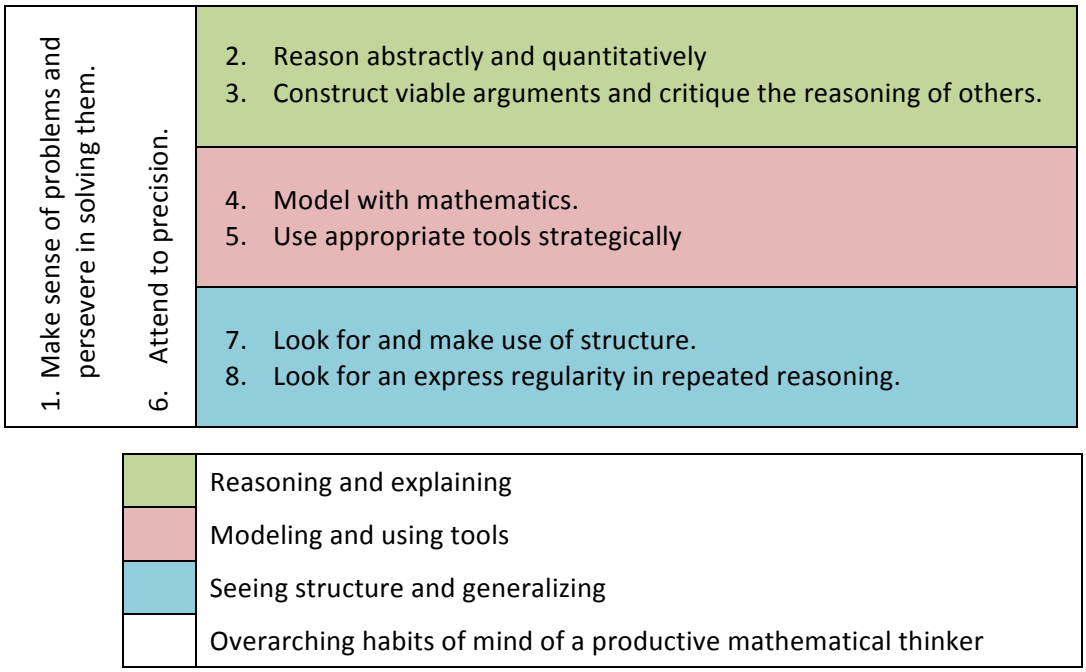
The Standards for Mathematical Practices

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

Managing the Mathematical Practices: The Mathematical Practices can seem overwhelming to weave into the curriculum, but once you understand the relationships among them and their potential use in mathematical tasks, the task becomes more manageable. Because of their interrelated nature, the Mathematical Practices are rarely used in isolation from one another. Consequently, we can expect students to learn the practices concurrently when they are engaged in mathematical problem solving.

The Mathematical Practices are articulated as eight separate items, but in theory and practice they are interconnected. The Common Core authors have published a graphic depicting the higher-order relationships among the practices (see Figure below). Practices 1 and 6 serve as overarching habits of mind in mathematical thinking and are pertinent to all mathematical problem solving. Practices 2 and 3 focus on reasoning and justifying for oneself as well as for others and are essential for establishing the validity of mathematical work. Practices 4 and 5 are particularly relevant for preparing students to use mathematics in their work. Practices 7 and 8 involve identifying and generalizing patterns and structure in calculations and mathematical objects. These practices are the primary means by which we separate abstract, big mathematical ideas from specific examples.

Higher-Order Structure of the Mathematical Practices



The Eight Standards for Mathematical Practice

MP.1: Make sense of problems and persevere in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Less experienced students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

MP.2: Reason abstractly and quantitatively. Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

MP.3: Construct viable arguments and critique the reasoning of others. Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Less experienced students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later. Later, students learn to determine domains to which an argument applies. Students at all levels can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

MP.4: Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. This might be as simple as writing an addition equation to describe a situation. A student might apply proportional reasoning to plan a school event or analyze a problem in the community. A student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using

such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

MP.5: Use appropriate tools strategically. Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

MP.6: Attend to precision. Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. Less experienced students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

MP.7: Look for and make use of structure. Mathematically proficient students look closely to discern a pattern or structure. Students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7 x 8 equals the well-remembered 7 x 5 + 7 x 3, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, students can see the 14 as 2 x 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5– 3(x-y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

MP.8: Look for and express regularity in repeated reasoning. Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Early on, students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, students might abstract the equation (y-2)/(x-1) = 3. Noticing the regularity in the way terms cancel when expanding (x–1) (x+1), (x-1) ($x^2 + x + 1$), and (x–1)($x^3 + x^2 + x + 1$) might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

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M.1 Number Sense and Operations: Students will develop and apply concepts of number sense and operations to explore, analyze, and solve a variety of mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.1.1.1 Understand place value. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following special cases: a. 10 can be thought of as a bundle of ten ones – called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, … eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80 90 refer to one, two three, four, five, six, seven, eight, or nine tens (and 0 ones).	Given a set of ten numbers, identify place values, i.e., given 45, state the place value of the 4.	Counting things one at a time, e.g., counting medicine tablets, how many to take at a time Buying produce Buy one, get one free sales Reading pay stubs, money orders, and checks	Have students demonstrate place value by expanding numbers. For example, given 29 the students would say (or write) they have 2 tens and 9 ones. They could also demonstrate by using toothpicks or other concrete examples.
M.1.1.2 Understand place value. Compare two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	Given ten sets of two numbers, place the correct symbol between each set of numbers.	Determine which item costs more	Materials: Cards with two digit numbers. Activity: Randomly give each student two cards. Once all students have two cards have them share their cards with the class by placing the correct symbol (<, >, or =). For example if a students has 27 and 46 they will share 26 is less than 46 and 46 is greater than 27.
M.1.1.3 Use place value understanding and the properties of operations to add and subtract. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	Fluently add and subtract at least ten problems.	Finding total spent when buying two items Figuring how much money remains after shopping for small purchases less than $20	Materials: One box of toothpicks per pair of students. Rubber bands. Activity: Students use the toothpicks to demonstrate place value, addition and subtraction. For example, a student would demonstrate the number 47 by showing 4 bundles of ten toothpicks and 7 single toothpicks.

M.1.1.4 Use properties of operations to add and subtract. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range of 10-9 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	Use concrete models to demonstrate an addition problem and a subtraction problem.	Telling which address falls within a given block Writing a money order for a whole dollar amount (no change) Finding a hospital or hotel room Recognizing when house numbers go up or down Finding pages in a book	Have students practice mentally adding or subtracting 10 as the teacher randomly call out two-digit numbers. For example, the teacher says, "What is 10 more than 36?" or "What is 10 less than 54?" This could be a daily warm up exercise.

M.2 Measurement: Students will develop and apply concepts of standard measurements and use measurement tools to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.2.1.1 Measure lengths indirectly and by iterating length units. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.	Measure a table, desk, or other object in the classroom using a "length unit" to measure and stating that there are __ lengths of this unit in the object being measured. Note: Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.	Measuring objects	Activity: Have students measure objects within the classroom using a "length unit" to measure each object.
M.2.1.2 Measure the length of an object twice, using length units of different lengths for the two measurements and describe how the two measurements relate to the size of the unit chosen.	Measure the same classroom object twice using two different "length units" and describe how the measurements relate to the size of the unit chosen.	Measuring	Activity: Have students measure objects within the classroom using different "length units" and then have them describe how the measurements relate to the size of the unit chosen (or assigned.

M.3 Geometry: Students will develop and apply concepts of geometric properties, relationships, and methods to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.3.1.1 Analyze, compare, create, and compose shapes. Analyze and compare two- and three-dimensional shapes, in different sizes and orientation, using informal	Identify the names of shapes with given pictures, draw the shape when given the name orally, describe the shape orally, and identify at least two examples of each shape within the	Understanding road signs Identifying things, e.g., a curved road, a straight highway, a rotary Passing drivers test or renewing driver's license	Activity: Have students identify and measure as many shapes as they can find in the classroom, building, and campus. Students should make notes and sketches of the shapes the find. Upon return to the classroom, have students draw some of the shapes they found to given dimensions. Ask students to compare their drawing to the actual item.

language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	classroom environment. Instructor should be sure the classroom includes multiple examples of each shape.	Recognizing the shapes used in buildings and around the home (i.e., doors, cookware, etc.), and other everyday structures and items Reading directions	
M.3.1.2 Reason with shapes and their attributes. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	Given four different shapes, draw three composite shapes using two of the given shapes and then draw two additional composite shapes using at least three of the given shapes. Each given shape should be used at least once and all shapes may be used more than once.	Real world composite shapes: Rooms with a building Gardens and landscaping areas Swimming pools Decks Buildings	Materials: Playdough. Activity: Have students compose shapes using playdough. Have students create composite shapes, i.e., two right triangles to make a rectangle. Materials: An assortment of two-dimensional shapes. Activity: Say: I have a pile of different shapes. Choose two of them to put together to create a new shape. After the student creates the shape say: Describe your new shape. Tape the two shapes together and slide the new composite shape to the side and ask the student to do them same thing with two of the remaining shapes. After the student creates the shape say: Describe your new shape. Tape the two shapes together. Slide the first composite shape next to the new shape. Then say, You made two new shapes. Now, put them together to create a brand new shape. After the student creates the shape say: Describe your new shape.

M.4 Data Analysis, Statistics, and Probability: Students will develop and apply concepts of data analysis, statistics, and probability to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.4.1.1 Identify and name various simple visual data (graphs, charts, tables) found in authentic publications.	Identify and bring examples of at least three graphs, charts, and/or tables found in real world publications. Make materials available for students to complete this indicator during class time.	Reading visual data in an advertisement or poster Reading magazines and newspapers Looking up tax payments Finding current interest rates	Materials: One copy per student of simple visual data taken from authentic publications (brochure, newspaper, magazine, etc.). Activity: Give each student an example of visual data and then have students identify the visual data assigned to them and giving at least two examples of why they decided it was that type.
M.4.1.2 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than another.	List the categories and the number in each category from a sample set that is sorted.	Planning a neighborhood party Keeping track of who will or will not attend a party Sorting stock by size Counting and listing stock	Materials: One copy per student of various visual data taken from authentic publications (brochure, newspaper, magazine, etc.). Activity: Ask students to interpret their assigned figure, and then explain what that figure illustrates. Ask other students to add additional details. Clarify explanation and answer student questions before proceeding to the next figure and a different volunteer. Materials: With input from students, collect multiple scores for a given game, either from a classroom activity or a newspaper. Activity: Ask students to order the scores and write an appropriate label for the ordered scores. Upon completion, review different ways students chose to order the scores. If students appear to need more practice, repeat activity or assign appropriate homework. Materials: A small bag or cup of M&M's for each student. Have students to list the "stock" in each bag or cup of M&M's.

M.5 Algebraic Thinking: Students will develop and apply concepts of basic algebra, patterns, relationships, expressions, equations, and functions to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.5.1.1 Understand and apply properties of operations and the relationship between addition and subtraction. Apply properties of operations as strategies to add and subtract.	Rewrite at least five expressions using the indicated property or identify the property used in examples where the properties were used to rewrite expressions.	Preparing for further study	*Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 4 + 6, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)* Using manipulatives have students demonstrate the commutative and associative properties.
M.5.1.2 Understand subtraction as an unknown-addend problem.	Complete a minimum of ten problems involving subtraction.	Maintaining checkbook Helping children with homework.	*For example, subtract 10 - 8 by finding the number that makes 10 when added to 8.* Have students practice mental math by asking questions like, "If I want to subtract 12 – 7, what number will make 12 when added to 7?"
M.5.1.3 Add and subtract with 20. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). Add and subtract within 20, demonstrating fluency for addition and subtraction with 10. Use strategies such as counting on: making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	Complete a minimum of ten problems using objects, pictures, or tallies to show addition.	Paying a seven dollar amount by using one five dollar bill and two ones or a thirteen dollar amount by using a ten dollar bill and three ones Figuring hours of work or sleep	Materials: Dime, penny, and play/monopoly dollar for each student. Activity 1: In pairs, students calculate how much money they have if they pool their money in all combinations of 2 items (dime and penny, dollar and dime, dollar and penny). Activity 2: Make columns on chalkboard, and have each pair write their total in each column (values in each column should be the same). Then have students total the amount of money in the room (use statement such as "Let's see how much we have if we pool our money to buy a pizza").
M.5.1.4 Work with addition and subtraction. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.	Given a list of ten equations make each as true or false.	Knowing when two things are the same	*For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*
M.5.1.5 Work with addition and subtraction. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.	Complete at least ten simple number sense problems such as: 8 + __ = 9, __ + 5 = 7, 10 – 3 = ___, 10 - ___ = 6, etc.	Helping children with homework Test taking when seeking employment	*For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = ? – 3, 6 + 6 = ?*
M.5.1.6 Represent and solve problems involving addition and subtraction. Solve word problems that call for addition and subtraction of whole numbers less than or equal to 20. Apply commutative property of addition and associative property of addition to add. Understand subtraction as an unknown-addend problem.	Solve at least five word problems.	Grocery shopping Helping young children with real world problems	Activity: Have students write word problems based on information from a grocery store add or other sale paper.

M.1 Number Sense and Operations: Students will develop and apply concepts of number sense and operations to explore, analyze, and solve a variety of mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.1.2.1 Understand that the three digits of a three-digit number represents amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following special cases: a. 100 can be thought of as a bundle of ten tens – called a "hundred." b. The numbers 100, 200, … 900 refer to one, two, … nine hundreds (and 0 tens and 0 ones).	Have students explain the place value of a number. For example what do each of the digits mean in 735?	Counting Ordering numbers	Materials: Deck of playing cards with tens, face cards, and jokers removed. Activity: Give each student 4 cards. Ask students to arrange the four cards/digits to make as large a number as possible, have them read their number. As the numbers are read record them on the board. After 5-6 students have read their numbers have students arrange the numbers from smallest to largest.
M.1.2.2 Count within 1000; skip-count by 5s, 10s, and 100s.	Complete a set of problems that require counting by 5's, 10's, & 100's.	Counting set of items	Have students practice counting money, i.e., 5 dollar bills, 10 dollar bills and 100 dollar bills.
M.1.2.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	Complete a minimum of five problems that require identifying place value up to the thousands.	Telling which address falls within a given block Writing a money order or check for a whole dollar amount (no change)	Materials: Deck of playing cards with tens, face cards, and jokers removed. Activity 1: Deal each student 4 cards. Have them record the numbers from the four cards on a piece of paper to make a number in the thousands. Have students read aloud their number.
M.1.2.4 Compare two three-digit numbers based on meanings of hundreds, tens, and ones digits, using >, =, < symbols to record the results of comparisons.	Given ten sets of two numbers, place the correct symbol between each set of numbers.	Determine which item costs more	Materials: Cards with three-digit numbers. Activity: Randomly give each student two cards. Once all students have two cards have them share their cards with the class by placing the correct symbol (<, >, or =). For example if a students has 287 and 476 they will share that 287 is less than 476 and 466 is greater than 287.
M.1.2.5 Add up to four two-digit numbers using strategies based on place value and properties of operations.	Fluently add and subtract at least ten problems.	Finding total spent Figuring how much money remains after shopping	Materials: One box of toothpicks per pair of students. Rubber bands. Activity: Students use the toothpicks to demonstrate place value, addition and subtraction. For example, a student would demonstrate the number 47 by showing 4 bundles of ten toothpicks and 7 single toothpicks.
M.1.2.6 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers,	Use concrete models to demonstrate an addition problem and a subtraction problem.	Telling which address falls within a given block Writing a money order for a whole dollar amount (no change) Finding a hospital or hotel room Recognizing when house numbers go up or down Finding pages in a book	Have students practice mentally adding or subtracting 10 as the teacher randomly call out two-digit numbers. For example, the teacher says, "What is 10 more than 36?" or "What is 10 less than 54?" This could be a daily warm up exercise.

one adds or subtracts hundreds and hundreds, tens and tens, and ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.			
M.1.2.7 Use place value understanding and properties of operations to add and subtract. Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.	Complete a minimum of ten problems that require adding whole numbers up to three digits using carrying.	Adding up purchases before paying Checking charges on bills	Activity: Ask each student to count/sum the amount of money they have in change in their pocket or purse (those who do not have any may write a total from activity 1 in M.1.2.2). Then have students total the amount of money in the room (use statement such as "Let's see how much we have if we pool our money to buy a pizza").
M.1.2.8 Use place value understanding and properties of operations to add and subtract. Explain why addition and subtraction strategies work, using place value and the properties of operations.	Complete a minimum of ten problems that require subtracting whole numbers up to three digits using borrowing, including borrowing from zeroes and check each answer using addition.	Balancing a checkbook Making change (e.g. for a $20 bill, by counting from the price to $20)	Materials: Play money. Activity: Distribute $900 in play money to each pair of students. Write a number on the chalkboard and tell them they have just received a bill for that amount of money; direct them to calculate how much they will have left after they pay that bill. Direct them to add the money they "paid" to the money they have left to check their computation. After they complete both calculations, have them count the money to "pay" the amount on the chalkboard, then count the money they have left to see if it matches their answer. Repeat this exercise several times, changing the "cost" written on the chalkboard each time.
M.1.2.9 Use place value understanding and properties of operations to perform multi-digit arithmetic. a. Use place value understanding to round whole numbers to the nearest 10 or 100. b. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction.	Round a minimum of five numbers to tens and a minimum of five numbers to hundreds. Solve a minimum of five problems using estimation that involves tens and hundreds.	Budgeting to pay bills Estimating total cost of items to be purchased	Materials: "Rounding in a Row for Addition" game from ABSPD Numeracy Manual. Activity 1: Play the game according to the rules given on the template. Activity 2: Allow student to make up different rules or a new game board.
M.1.2.10 Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations	Complete a minimum of ten problems that require multiplying by 10 and 100.	Changing dollar amounts to dimes and pennies and vice versa Changing meters to centimeters and vice versa	Materials: 100 pennies and 10 dimes for each student. One worksheet per student listing items and purchase prices with every price being a multiple of 10 cents. Activity 1: Each student gets 100 pennies. The premise for this activity is that they are isolated in a place where all purchases are from vending machines that only take pennies. Direct students to make put enough pennies in stacks of 10 to purchase various items costing less than $1. After each "purchase", student should fill in number of stacks and total number of pennies on worksheets ____ X 10 = ____. For last question, allow them to purchase 10 dimes with 10 stacks of 10 pennies and complete that problem on the worksheet.

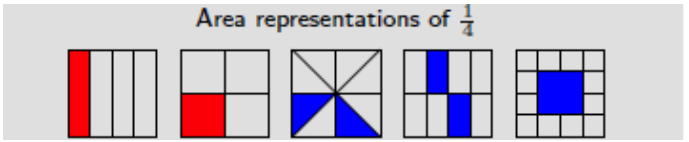
M.1.2.11 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	Divide at least six one or two digit numbers into equal parts and write the equivalent fraction for each.	Dividing a board into equal parts Dividing a dozen Easter eggs among 3 children, 4 children, etc. Dividing a bag of candy among a specific number of people	Materials: 20 $1 bills (play money) for each pair of students. Activity 1: Tell students that each pair member should take half of the money. After they divide the money, ask how much each has, and point out the relationship between ½ and dividing by 2. Activity 2: Tell students to donate $2 to the bank, and divide the remaining $18 into thirds so they each get a third and the instructor gets a third. Ask how much each student still has and relate 1/3 of 18 to dividing by 3.
M.1.2.12 Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	Identify at least one example of the following: 1/8, 1/4, 1/3, 1/2, and whole. Demonstrate at least one of each, e.g., the student will fold paper or cut a candy bar or a pie into the designated parts. Represent fractions on a number line.	Following recipes Preparing/dividing portions of a meal among family members	Materials: Two manipulative circles (such as felt backed), one divided into 6ths and one divided into 8ths. One worksheet per student showing sketches of pies, some sliced into 6 pieces and some into 8 pieces. Activity: Show the relationship between number of slices and fraction of the circle. Have students color or shade 2 slices of an 8-piece pie to create ¼, two slices of a 6-piece pie to create 1/3, etc.
M.1.2.13 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. c. Understand two fractions as equivalent (equal) if they are the same size, or the same point on the number line. d. Recognize and generate simple equivalent fractions, e.g., ½ = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. e. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.	Identify and calculate equivalent fractions (fourths, thirds, halves, eighths, fifths, and tenths) solving a minimum of ten problems that require reducing and raising fractions to higher terms.	Using a 1/4 cup measure to add 3/4 of a cup of flour to a recipe Reading fractions used in sale signs and special offers (e.g., 1/2 off) Recognizing relationships in the context of measures, (e.g., that 2/8 inch = 1/4 inch)	*Examples: Express 3 in the from 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* Materials: Three manipulative circles (such as felt backed), one divided into 6ths, one divided into 8ths, and one divided into tenths. One worksheet per student showing sketches of pizzas, some sliced into 6 pieces, some into 8 pieces and some into 10 pieces. Activity 1: Show the relationship between number of slices and fraction of the circle. On their worksheets, have students color or shade 2 slices of an 8-piece pizza to create ¼ and two slices of a 6-piece pizza to create 1/3. Then have them color two slices at a time of a 10-piece pizza to divide the pizza into 5ths. Continue with 2/4, 3/6, 4/10, etc. and discuss desirability of lowest term fractions. Materials: 100 pennies for each student. Activity 2: Teacher directs student to divide pennies into two piles of 60¢ and 40¢. Student then divides each pile into various parts as demonstrated by instructor using fourths, thirds, halves, eighths, etc.

f. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.			

M.2 Measurement: Students will develop and apply concepts of standard measurements and use measurement tools to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.2.2.1 Measure and estimate lengths in standard units. Estimate length units using units of inches, feet, centimeters, and meters. Measure to determine how much longer one object is than another, expressing the length difference in terms of standard length unit.	Measure and estimate the length, width, and height of at least three items in the classroom, i.e., desk, table, dictionary, bookcase, file cabinet, door, window, etc.	Measuring the length and width of a photo, room, window, table, etc. Giving one's height on a medical form	Materials: One tape measure for each pair of students. Activity: Assign each pair two items to measure (windowpane, room wall, table length, chalkboard length, height of chair). Have students record item name, measurement, and then rewrite that measurement in the alternate form (inches vs. feet and inches). Be sure two different pairs of students measure the same object, compare measurements, and if there is a disagreement in measurement or conversion, discuss to clarify understanding.
M.2.2.2 Relate addition and subtraction to length. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1,, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.	Demonstrate how to complete at least one addition problem and one subtraction problem using a yardstick as the number line.	Measuring household items Measuring items at work	Have students practice making number lines and demonstrate using them to perform addition and subtraction problems. Get students moving by making a number line using the tile spacing in the classroom or hallway. Invite students to begin at 3 and move 8 spaces or begin at 4 and move 25 spaces. Discuss the relationship between 0, 3, 8 and 11 or 0, 4, 25, ad 29. Have part of the class represent a "human" number line and then have other students show lengths on the number line.
M.2.2.3 Solve problems involving measurement and estimation of intervals of time. Tell and write time to the nearest minute and measure time intervals in minutes.	Complete a minimum of ten problems that require reading time to the nearest hour and half hour from analog and digital clocks.	Reading appointment times Reading schedules Setting the alarm on a clock Reading a bus schedule that uses Cooking a turkey Calculating "piece work" Calculating time to travel to work	Materials: An analog clock and a digital clock or pictures showing time that can be projected. Activity: Ask students to record the times shown on the clocks including 'am' or 'pm'. When you show them the time on the clock include phrases such as this is what time I went to bed last night or this is the time that I ate breakfast this morning so that they can correctly indicate pm and am. After students have recorded their response write correct responses on the board and ask questions to generate discussion.
M.2.2.4 Solve problems involving measurement and estimation of liquid volumes and masses of objects. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilogram (kg), and liters	Solve a minimum of five problems that require identification and selection of appropriate measures for masses and volume.	Buying groceries Doubling a recipe Determining the amount of weight to put on a truck	Activity: Have students brainstorm things for appropriate measure, i.e., what measurement would you use for the weight of an elephant, what weight would you use for a premature baby, what weight would you use to weight a bird, etc. For volume, ask questions such as when you buy berries at the store how might they be packaged or if you are cooking for two people how might you measure the amount of rice to cook, etc.

(l). Add, subtract, multiply or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.			
M.2.2.5 Geometric measurement: Understand concepts of area and relate to area of multiplication and addition. Recognize area as an attribute of plan figures and understand concepts of area measurement. a. A square with a side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure, which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. c. Measure areas by counting unit squares (square cm, square m, square ft and improvised units).	Determine the area of three figures that have been divided with unit squares or provide shapes and unit squares for student to use.	Floor coverings Ceiling tiles Purchasing paint Gardening	Materials: Tiles and small rectangular boxes or objects. Activity: Have students lay out tiles to determine the area of boxes or other small objects.
M.2.2.6 Geometric measurement: Relate area to the operations of multiplication and addition. a. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. b. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a x b and a x c. Use area models to represent the distributive property of mathematical reasoning.	Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.	Purchasing carpet or area rug Determine the amount of fertilizer to cover an area of grass Planning renovations or paint for a room	Materials: Tiles and small rectangular boxes or objects. Activity: Have students lay out tiles to determine the area of boxes or other small objects by counting and then showing that if you multiply the number of tiles in the first row times the number of tiles in the first column that it is equal to the total number of tiles.

M.2.2.7 Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	Use a measuring instrument to accurately measure perimeter and area of three objects found in the classroom.	Purchasing window shades or coverings, weather stripping, lumber, rug, or fabric Describing a rectangular photo or frame Finding the length of fencing around a garden Sewing a chair cover	Materials: Rulers or yardsticks for half the number of pairs of students, tape measures for the other half. Activity: Assign the following items to have length and width measured with a ruler or yardstick: book, desk, and chalkboard. Assign the following items to be measured with a tape measure: wall (length), door (height), table (perimeter), and wastebasket (perimeter). Measurements should be recorded on chalkboard and verified by other pairs, then discussed. Activity: Ask students to choose an item in the classroom and demonstrate what the perimeter would be, i.e. for a desk they would show that the perimeter would be the distance around the edges, for the room the perimeter would be the distance around the walls, etc.

M.3 Geometry: Students will develop and apply concepts of geometric properties, relationships, and methods to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.3.2.1 Reason with shapes and their attributes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	Solve at least five practical problems using the properties of 2-D and 3-D figures and build at least one 3-D figure using 2-D plans and blocks.	Organizing a closet Packing a trunk Covering a package with paper Tying string around a package	Activity: have students visually compare shapes found within their classroom, building, and/or area.
M.3.2.2 Reason with shapes and their attributes. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of, etc,* and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	Match the shares of circles and rectangles with the words that describe the shares.	Cutting cake in half or folding objects Designing and making a quilt Recognizing patterns, symmetry, and balance in landscaping, design, art, and architecture	Materials: One round cookie and a knife for each pair of students. Exercise: Tell students to divide the cookie into half so that each will get the same amount. Point out that the student who does not cut the cookie gets to take first choice of halves. Discuss how halving created two equal amounts. Repeat the exercise with another cookie and roles of pair members switched.
M.3.2.3 Reason with shapes and their attributes. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	Match the shares of circles and rectangles with the words that describe the shares.	Cutting cake in half or folding objects Designing and making a quilt Recognizing patterns, symmetry, and balance in landscaping, design, art, and architecture	For example, partition a shape into four parts with equal area and describe the area of each part as ¼ of the area of the shape. Have students show different ways of expressing ¼ of the area of a rectangle. Discuss the many different ways that ¼ of the area can be shown. 

M.3.2.4 Reason with shapes and their attributes. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Identify attributes that shapes share for at least 4 examples.	Reading road signs Understanding shapes of buildings on maps	Activity: Have students identify different shapes found in the classroom and discuss their shared attributes or take students outside and have them write about an object that they see and how geometry is used to create that object. Activity: Students will create riddles for their classmates to solve based on the attributes of the different shapes. An example of this is: • I am a shape that has four vertices. • All of my sides are congruent. • I have no right angles. • Who am I?

M.4 Data Analysis, Statistics, and Probability: Students will develop and apply concepts of data analysis and probability to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.4.2.1 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories.	Given a set of data (e.g., 20 grocery store coupons), create a table that has at up to four categories, then create a bar graph.	Making a list of minutes used on cell phone for the past year Making list of electricity used and monthly cost for the past year Keeping a list of calories consumed for each meal over a period of time Keeping a log of temperature, growth or weight changes	Materials: A variety of graphs and tables. Activity: Give each pair of students one of the simple graphs or tables. Ask them to reorganize or reformat the graphs to make the information easier to read. Activity: Have students record the number of minutes of TV watched each day for 2 weeks. Then they could find the mean, median, and mode of their log.
M.4.2.2 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.	Given a data set, draw a scaled picture graph and a scaled bar graph to represent the given data set.	Student attendance chart Children's weekly chore chart Student demographic information Reading a nutrition graph in a health poster Conversing about information contained in newspapers and magazines	Materials: A variety of simple graphs and tables. Activity: Give each pair of students one of the graphs or tables. Ask each pair of student to write two questions about their graph or chart. When students have their questions written have them exchange with another pair of students and solve each other's questions. Materials: Bar graphs from newspaper, magazine, or online Activity: Give each group of students a bar graph to use for development of questions about the graph. Then allow students to exchange the questions so that another group of students answers their questions. Discuss all questions and answers.
M.4.2.3 Solve one- and two-step problems "how many more" and "how many less" problems using information presented in scaled bar graphs.	Given a scaled bar graph, answer questions about the graph.	Reading bar graphs Analyzing nutrition labels Comparing electric usage from month to month Comparing minutes used on cell phone Grouping cents off coupons based on store layout Reading charts and graphs in publications	Have students collect data and make bar graphs about the number of siblings for class members, favorite pizza toping, favorite pet, type of movie watched, etc. Materials: Bus or Train Schedule that includes several stops. Activity: Give students a bus/train schedule and have them determine how long it will take to go from point A to point B. Include several stops and have a layover for lunch. Materials: A variety of simple graphs and tables. Activity: Allow each pair of students to select a graph or table and then write a brief story about the graph explaining what it means.

M.5 Algebra: Students will develop and apply concepts of basic algebra, patterns, relationships, and functions to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.5.2.1 Represent and solve problems involving addition and subtraction. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, wit unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	Solve at least five one- and two-step word problems.	Helping a child with homework Calculating distance traveling and miles left Shopping Calculating total and differences Working out the shortfall in numbers, e.g., eggs for a recipe, plants to fill a display tray, cups to serve visitors Estimating costs when shopping Budgeting, estimating total bills for a month	Materials: Sales ad, coupons. Activity: Calculate the final price after the use of a coupon. Calculate the price of two items. Compare prices and calculate the savings. Materials: Restaurant menu, order. Activity: Calculate the cost of a meal before taxes.
M.5.2.2 Represent and solve problems involving multiplication and division. *a.* Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. b. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.	Explain a real world example of when you would use multiplication to combine something or division to divide something into shares.	Planning a party Determining how many cars needed to transport a group Landscaping – how many plants are needed to plant several rows	Have students practice with real world problems that require multiplication and division. Have students describe their problem solving approach and explain their answers. For example, *For example, describe a context in which a total number of objects can be expressed as 5 x 7.*
M.5.2.3 Multiply and divide within 100. a. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. Know from memory all products of two one-digit numbers. b. Use multiplication and division within 100 to solve word problems in situations involving	Complete a minimum of ten problems that require multiplying or dividing whole numbers.	Calculating the cost of a single item when purchased in multiples, i.e. 3 items for $2 or the cost per item when 24 items comes in a case.	Materials: Box of toothpicks for each student. Activity: Assign a number of toothpicks for students to select. After each student has counted out that many, tell them to divide the toothpicks into 2 groups and determine how many are in each group. Repeat exercise with 3 groups, 4 groups, etc. through 9 groups.

equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.			
M.5.2.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	Find the unknown number for at least 5 equations. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ? ÷ 3, 6 × 6 = ?.	Determining how much food to buy for a party Counting	For example, determine the unknown number that makes the equation true in each of the equations 8 x ? = 48, 5 = ? ÷ 3, 6 x 6 = ?. Have student make up equations for each other to solve.
M.5.2.5 Understand properties of multiplication and the relationship between multiplication and division. Apply properties of operations as strategies to multiply and divide. Note: Students need not use formal terms for these properties.	Rewrite a minimum of ten problems that require use of associative and commutative properties, i.e., use properties to fill in blanks or rewrite complete problems.	Shopping for food and clothing	*Examples: If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known. (Commutative property of multiplication.) 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 x 10 = 30. (Associative property of multiplication.) Knowing that 8 x 5 = 40 and 8 x 2 = 16, one can find 8 x 7 as 8 x (5 + 2) = (8 x 5) + (8 x 2) = 40 + 16 = 56. (Distributive property.)* Materials: 12 toothpicks per pair of students. Activity: Each pair of students divides their toothpicks into 2 groups to verify that 2 X 6 = 12. Then they divide their toothpicks into 6 groups to verify that 6 X 2 equal 12. Repeat with other numbers.
M.5.2.6 Understand division as an unknown-factor problem.	Complete a minimum of 30 problems presented in different formats (i.e., horizontal and vertical) using numbers 0-12.	Dividing recipes Reading food labels Building projects	Materials: 30 toothpicks for each student. Activity: Direct students to separate their toothpicks into two groups and point out how that relates to division of 30 by 2. Repeat this process by separating into 3 groups, then 5 groups, and then 6 groups.
M.5.2.7 Solve problems involving the four operations, and identify and explain patterns in arithmetic. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Solve a minimum of five real-life word problems involving addition, subtraction, multiplication, and division using two digit whole numbers.	Shopping Calculating total and differences Working out the shortfall in numbers, e.g., eggs for a recipe, plants to fill a display tray, cups to serve visitors Estimating costs when shopping Budgeting, estimating total bills for a month	Have students write and solve word problems based on information from a menu or sale paper. Have students practice rounding using a sale paper or menu. Note: This standard is limited to problems posed with whole numbers having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
M.5.2.8 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.	Identify the next number or item in repeating patterns for at least five patterns.	Counting beats in music Designing a necklace and describing the assembly rule Laying tile on a floor Playing card games Planning fare for round trip subway travel	*For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.* Materials: Deck of playing cards for each pair of students. Materials: Writing paper or notebooks. Activity: Direct students to write numbers, as if counting, in rows of an assigned number of values and note the last number of each row (such as numbers ending in 5 or 0 if each row has 5 numbers. Generate discussion of patterns observed.

M.1 Number Sense and Operations: Students will develop and apply concepts of number sense and operations to explore, analyze, and solve a variety of mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.1.3.1 Generalize place value understanding for multi-digit whole numbers. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right and 1/10 of what it represents in the place to its left.	Complete three problems demonstrating the ability to break down large whole numbers into ones, tens, hundreds, thousands, ten thousands, etc. complete a minimum of three problems that require rounding large whole numbers to the indicated place value and complete at least three problems that require comparing two multi-digit numbers.	Rounding numbers to make approximate calculations Knowing which number is largest	Activity: Collect large numbers from news stories and use them to practice place value, rounding and comparing numbers. *For example: recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*
M.1.3.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	Order a list of at least 20 large whole numbers from smallest to largest.	Filing papers in numerical order Reading route numbers on delivery labels	Materials: blank checks (teachers can make their own) Have students practice writing checks for different amounts.
M.1.3.3 Use place value understanding to round multi-digit whole numbers to any place.	Round at least 10 multi-digit whole numbers to the indicated place value.	Purchasing large ticket items Budgeting Filling out income tax forms	Activity: Give each student an index card with a large whole number on it. Give out play checks that the student fills in with the number written numerically and in words. Have all students join together to put their checks in order from least to greatest.
M.1.3.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	Complete a minimum of ten problems involving addition and subtraction of whole numbers.	Determining the dollar amount spent on several purchases Determining the amount of dollars left after a shopping trip Performing mental addition and subtraction Checking deposits in a checking account	Activity: Use real-life materials, i.e., sale papers, menus, catalogs, etc. to make practice problems.
M.1.3.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Complete a minimum of ten problems involving multiplying by two and three digit whole numbers and checking answers.	Finding the cost of purchasing tickets for a play for a class of student. Estimate the total dollars taken in when tickets are sold for a fund raiser Finding the area of a parcel of land	Materials: Bingo numbers or index cards with 2 and 3 digit numbers on them. Activity: Teacher randomly chooses two numbers for students to multiply the numbers together.

M.1.3.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Given a problem set with four-digit dividends and one-digit divisors, students will find the quotient and remainder with 80% accuracy and explain how they solved the problem.	Creating a budget Cooking Planning a party Grocery shopping	Activity: Determine the amount of ingredients that would need to be purchased to make _____ number of brownies (such as for a fund raiser). How many bags of flour, dozens of eggs, quarts/liters of oil, etc. Long Division With and Without Remainders https://www.khanacademy.org/math/arithmetic/multiplication-division/long_division/v/division-3--more-long-division-and-remainder-examples
M.1.3.7 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	Identify the place value for a minimum of five decimals each involving tenths, hundredths, or thousandths and then round each to the indicated place value, i.e., nearest whole number, tenth, or hundredth.	Reading price tags Understanding monetary amounts Reading gas pump information Estimating cost of groceries, restaurant bill, tips, etc.	Teaching from Concrete to Abstract: Begin by showing the video, Powers of 10 – Ultimate Zoom https://www.youtube.com/watch?v=bhofN1xX6u0 Moving the Decimal to Multiply and Divide by 10 https://www.khanacademy.org/math/pre-algebra/decimals-pre-alg/mult-div-by-10-dec-pre-alg/v/multiplying-a-decimal-by-a-power-of-10
M.1.3.8 Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.) b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	Read aloud at least three numbers with decimals up to three places, translate at least three numbers from English words to numerical symbols, and order the six numbers from smallest to largest.	Reading and comparing gas prices Reading and comparing metric measurements Reading price tags Understanding prices on a menu	Materials: One copy of batting averages part of a Sports Section of a newspaper for each pair of students. Activity 1: Explain that 3-digit batting averages are the proportion of hits per 1000 at bats. Assign a specific group of batting averages to each pair of students, such as the third highest batting average on each team, and ask them to make a ranked list showing batting average and players name (team optional), then explain the different in the batting averages of the top two players in their list. Materials: Deck of 100 flash cards (34 tenths, 33 hundredths, 33 thousandths) with number on one side and word name on the other. Activity 2: Shuffle and deal 10 cards to each player with number side up. 1st player reads the top card in his stack and 2nd player checks the word name on the back. Switch roles. Activity 3: Shuffle and deal 10 cards to each player name side up. At a signal, players display their cards in order from least to greatest.
M.1.3.9 Use place value understanding to round decimals to any place.	Solve and round answers in a minimum of five problems requiring rounding decimal answers.	Performing estimations of mathematical problems to check work	Materials: Collect grocery tickets or department store receipts. Activity 1: Teacher should highlight a few of the $ (dollar) or ¢ (cent) items for use. Ask the students to round off the decimal prices to the nearest tens, dollars, or tenths. Students can also compare the same items from like stores.
M.1.3.10 Perform operations with multi-digit whole numbers and with decimals to hundredths. Fluently multiply multi-digit whole numbers using the standard algorithm.	Given a set containing whole numbers and decimals up to hundredths, students should be able to add, subtract, multiply, or divide as indicated in each problem.	Reading price tags Understanding monetary amounts Reading gas pump information Estimating cost of groceries, restaurant bill, tips, etc.	Activity: Students are given a certain amount of money and must buy items for a party. They should calculate the total cost of their purchases and show how much money they have left. Multi Digit Multiplication https://www.khanacademy.org/math/arithmetic/multiplication-division/multi_digit_multiplication/v/multiplying-by-multiples-of-10

M.1.3.11 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Given a problem set with four-digit dividends and two-digit divisors, students will find the quotient and remainder with 80% accuracy and explain how they solved the problem.	Creating a budget Cooking Planning a party Grocery shopping	Divide 4 Digit Dividends by 2 Digit Divisors by Setting Up an Equation https://learnzillion.com/lessons/550-divide-4-digit-dividends-by-2-digit-divisors-by-setting-up-an-equation Divide 4 Digit Dividends by 2 Digit Divisors Using an Array https://www.youtube.com/watch?v=MS0nZ3ilbL4
M.1.3.12 Extend understanding of fraction equivalence and ordering. Explain why *a* fraction *a* / *b* is equivalent to a fraction (*n* x *a*) (*n x b*) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	Given two fractions with different denominators, students should be able to draw pictures that explain why the fractions are equivalent	Cooking Dividing food for a group of people	Visualizing Equivalent Fractions https://www.khanacademy.org/math/arithmetic/fractions/visualizing-equivalent-fractions/v/visualizing-equivalent-fractions Activity: Have students create equivalent fractions using the virtual manipulative from Illuminations available at: http://illuminations.nctm.org/Activity.aspx?id=3510
M.1.3.13 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1 / 2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	Given sets of two fractions, students should use the symbols >, =, or <, to identify whether the fractions are equal or which fraction is greater and be able to explain why.	Cooking Dividing food for a group of people	Comparing Fractions with Unlike Denominators https://www.khanacademy.org/math/cc-fourth-grade-math/cc-4th-fractions-topic/cc-4th-comparing-fractions/v/comparing-fractions-2 Using Fraction Circles to Teach Ordering Fractions http://www.cehd.umn.edu/ci/rationalnumberproject/RNP1-09/RNP1-09_06.pdf Activity: Students can create fractions to compare using the fraction tiles available at: https://docs.google.com/file/d/0B_wlnPzXZBUZY3E0cmxYSFhWTGM/edit?pli=1
M.1.3.14 Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers. Understand a fraction *a* / *b* with *a* > 1 as a sum of fractions 1 / *b*. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same	Show the decomposition of at least three fractions showing an equation and a visual model for each fraction.	Distances, i.e., jogging 4 3/10 miles Baking, cooking Construction workers Health workers, nurses Architect Anyone who uses a measuring tape for their job or hobby	*Decompose fraction examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* Decomposing fractions: https://www.khanacademy.org/math/cc-fourth-grade-math/cc-4th-fractions-topic/cc-4th-decomposing%20fractions/v/decomposing-a-mixed-number Building fractions from unit fractions: http://www.virtualnerd.com/common-core/grade-4/4_NF-numbers-operations-fractions/B

denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.			
M.1.3.15 Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	Given a set of mixed numbers with like denominators, students should successfully solve while using either equivalent fractions or other appropriate method.	Distances, i.e., jogging 4 3/10 miles Baking, cooking Construction workers Health workers, nurses Architect	Add Mixed Numbers by Finding Equivalent Fractions https://learnzillion.com/lessons/1716-add-mixed-numbers-by-finding-equivalent-fractions Activity: Add and subtract mixed numbers with the fraction manipulatives available at the National Library of Virtual Manipulatives: http://nlvm.usu.edu/en/nav/category_g_2_t_1.html
M.1.3.16 Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	Given a set of fraction addition and subtraction word problems, students should solve using either a visual model or an equation.	Distances, i.e., jogging 4 3/10 miles Baking, cooking Construction workers Health workers, nurses Architect Anyone who uses a measuring tape for their job or hobby	Activity: Students will create real world fraction problems for other students to solve Activity: Students can create fractions and compare them using the fraction tiles available at: https://docs.google.com/file/d/0B_wlnPzXZBUZY3E0cmxYSFhWTGM/edit?pli=1
M.1.3.17 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a* / *b* as a multiple of 1 / *b*. *b.* Understand a multiple of *a* / *b* as a multiple of 1 / *b*, and use this understanding to multiply a fraction by a whole number. c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.	Solve at least five real world problems involving multiplications of fractions. The student should show a visual model and/or equation to represent each problem.	Determining the amount of fabric to buy for a sewing project Combining or reducing lengths for craft or construction projects Adding hours on a time sheet that includes fractions	Examples: a. *Use a visual fraction model to represent 5/4 as the product of 5 x (1/4) recording the conclusion by the equation 5/4 = 5 x (1/4)* *b.* Use *a visual fraction model to express 3 x (2/5) as 6 x (1/5), recognizing this product as 6/5.* If *each person at a party will eat 3 / 8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*
M.1.3.18 Understand decimal notation for fractions, and compare decimal fractions. Use decimal notation for fractions with denominators 10 or 100.	Given a set of at least eight fractions and decimals, locate each on the numbers line diagram.	Dealing with money, especially pennies and dimes Converting measurements	*For example, rewrite 0.62 as 62/ 100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.* Use Decimal Notation for Fractions with Denominators 10 or 100 https://learnzillion.com/lessons/1424-convert-decimals-to-fractions-to-the-tenths-place-using-number-lines Activity: Math Jeopardy! game available at: http://www.math-play.com/Fractions-Decimals-Percents-Jeopardy/fractions-decimals-percents-jeopardy.html

M.1.3.19 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	Given sets of two decimals, students should use the symbols >, =, or <, to identify whether the decimals are equal or which is greater and be able to explain why.	Spending money Making change Comparing the costs of items in a store	Help students to understand that decimals to hundredths are like money. Use a video like this to introduce this concept: https://learnzillion.com/lessons/3158-compare-two-decimal-dollar-amounts-using-coin-values
M.1.3.20 Use equivalent fractions as strategy to add and subtract fractions. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	Solve a minimum of ten fraction problems (fourths, thirds, halves, eighths, fifths, and tenths) that include addition and subtraction with like and unlike denominators and borrowing from whole and mixed numbers.	Determining the amount of fabric to buy for a sewing project Combining or reducing lengths for craft or construction projects Adding hours on a time sheet that includes fractions	Materials: Make fraction circles (1/2, 1/3, 1/6) and scissors for each pair of students. Activity 1: Direct students to cut slices from different fraction circles for each exercise. Start with halves and thirds fraction circles, and have students lay a ½ slice and a 1/3 slice on the sixths fraction circle to see what result of ½ + 1/3. Then explain the addition of fractions with unlike denominators. Repeat with other fraction circle combinations.
M.1.3.21 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	Complete at least ten fraction problems that require addition or subtraction where the denominators are the same for each individual problem.	Combining ingredients in a recipe Calculating parts that are left over, i.e., cutting wood, fabric, pizza, etc. Using a 1/4 cup to measure 3/4 cup for a recipe	*For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2* Materials: Make 3 fraction circles and copy one of each for each student. For example, using 1/3, 1/8/ and 1/12 allows illustration of a range of fractions sizes. Activity 1: Direct students to shade or color one section of the 1/3 fraction circle. After students shade/color another 1/3 section slightly differently, ask the to add 1/3 + 1/3 (point out that this is just like adding 1 apple or whatever to another). Then ask what proportion of the circle is shaded.
M.1.3.22 Apply and extend previous understanding of multiplication and division to multiply and divide fractions. Interpret a fraction as division of the numerator by the denominator ($a / b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	Solve a minimum of ten problems that include multiplication by fractions and division of fractions (fourths, thirds, halves, eighths, fifths, and tenths) using fractions that include like and unlike denominators and whole and mixed numbers.	Finding time-and-a-half pay rate when working overtime Reducing the quantities in a recipe Determining price when discount is given as a fraction off, i.e., 1/2 off or 1/4 off Canning and freezing foods (e.g., how many 3/4 quart jars are needed for 5 gallons of tomatoes?) Determining the length of a shelf (e.g., how long the shelf would need to be to hold 20 1.5 inch binders?)	*For example, If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?* Materials: Make fraction circles (1/4, 1/5, 1/3) and scissors for each pair of students. Activity: Direct students to cut a ½ slice from the halves fraction circle, then try to cut it into 2 equal parts. Have the place the results on the fourths fraction circle to evaluate their results, then explain the multiplication of fractions. Direct students to repeat this exercise by dividing a ½ slice into thirds and looking at fraction circles to find the slice size that would result. Slice sizes that would be good choices for halving include ¼, 1/5, 2/3, 2/5, and ¾.

M.1.3.23 Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a)/(n×b) to the effect of multiplying a/b by 1.	Model at least two problems such as, "My flashlight shines four times as far as Beth's flashlight. Beth's flashlight shines 3 feet." or "Juan and Ken are building magnetic block towers. Juan used 54 pieces to build his tower. Ken used 7/4 as many pieces a Juan. Who used more pieces?"	Comparing the size of a product to the size of the factors	Students often think the size of the product is always larger than the size of the factors, however this is only true when the factors are larger than one. Have students explain real-life word problems where the factors are less than 1, equal to 1, and larger than one.
M.1.3.24 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	Solve three real world problems involving multiplication of fractions and mixed numbers. For each problem show a visual fraction model and an equation to represent the problem.	Finding time-and-a-half pay rate when working overtime Reducing the quantities in a recipe Determining price when discount is given as a fraction off, i.e., 1/2 off or 1/4 off	Sample word problems for student practice: • Kennedy made 12 3/8 cups of tea. She and her friends drank 7 1/4 cups. How much was left? • Maxie the cat ate 1 5/6 pounds of cat food last week. This week, he ate 3/4 pounds less. How much cat food did he eat this week? • Thomas walked 1 1/4 miles from his home to his school. Jackson walks 1 2/3 miles from his home to work. How much farther does Jackson walk to school than Thomas?
M.1.3.25 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. b. Interpret division of a whole number by a unit fraction, and compute such quotients. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.		Canning and freezing foods (e.g., how many 3/4 quart jars are needed for 5 gallons of tomatoes?) Determining the length of a shelf (e.g., how long the shelf would need to be to hold 20 1.5 inch binders?) Dividing items when sharing	Examples: a. Create a story context for (1/3) ÷ 4 and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) x 4 = 1/3. b. Create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ 1/5 = 20 because 20 x (1/5) = 4. c. How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

M.2 Measurement: Students will develop and apply concepts of standard measurements and use measurement tools to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.2.3.1 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems (by using an equation with a symbol for the unknown angle measure).	Solve at least three real world or mathematical problems by using an equation with a symbol for the unknown angle measure.	Finding the angle of a roof Finding the angle for corners of a room when the room is not square	Activity: Have students measure the angles of handicapped ramps found in their community and determine if they meet ADA codes.
M.2.3.2 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	Use the perimeter and area formula to find the perimeter and area of at least 3 real world problems	Installing a fence Installing carpet or tiles Landscaping Planning a garden Painting a room	For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. Activity : Decide how much carpet or how many tiles of different dimensions (8” x 8”, 12” x 12” would be necessary to cover your classroom.
M.2.3.3 Convert like measurement units within a given measurement system. Convert among different-sized standard measurement units within a given measurements system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world and mathematical problems.	Solve three real world problems that require converting standard measurement units.	Reading medicine and nutritional labels Doing home repairs and carpentry projects Loading a washing machine correctly to maintain balance Reading the capacity of a liquid to near exact measure	Materials: One meter stick for each pair of students. One metric-labeled contains such as a 2-liter soda bottle for each pair of students. One container with weight labeled in grams to put on the instructors desk/table. One worksheet per student of questions which ask the unit of measurement for items such as “length of wall”, “quantity of cough syrup”, and “weight of a coin.” Materials: measuring tools. Activity: Have students make measures using one unit and then convert their measurement into another unit, i.e., measure a table in inches, then calculate the number of feet, etc.
M.2.3.4 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	Solve at least three real world problems involving distances volumes, mass and/or money.	Estimating time of arrival with slower or faster speeds Estimating the time a trip will take from one place to another travelling at the speed limit	Activity: Discuss how distance, time and speed relate using examples such as students travelling to and from class. Then have student make additional practice problems based on trips they have taken.

M.2.3.5 Geometric measurement: Understand concepts of angle and measure angles. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the pints where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle" and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. c. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	Using a protractor, measure at least three angles and then sketch at lease three angles with assigned measurements.	Determining the angles at road intersections Determining the angles to make quilt squares fit together Determining the angles in building projects	Materials: protractor and items that have different angles Activity: Have students use the protractor to measure different angles and then discuss as a class.
M.2.3.6 Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. c. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Find the volume of a box by using unit cubes.	Determining how much product will fit into a certain size container Determining the volume of a room to decide what size air conditioner is needed. Pouring cement into a rectangular box for big slabs. Figuring out how much liquids to mix into something	Activity: Discuss when it is appropriate to use two-dimensional measurement versus square units.

M.3 Geometry: Students will develop and apply concepts of geometric properties, relationships, and methods to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.3.3.1 Draw and identify lines and angles, and classify shapes by properties of their lines and angles. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	Define perpendicular, square, and rectangle and identify rays, angles, perpendicular lines, parallel lines in two-dimensional figures.	Creating tiling or quilting patterns Framing a picture Creating a pattern for a model plane Reading floor plans Scrapbooking Reading city roadmaps Discussing city streets Landscaping Using a miter saw	Activity: Have students identify right angles in the classroom. Also identify two right angles, i.e., a straight wall makes two right angles. Show what happens when you make four right angles in the middle of a table, i.e., they fill the space. You can use painter tape for student to show right angles and straight angles. Activity: Have students give examples of parallel, perpendicular, and intersecting lines inside the classroom. Activity: Have students find real world angles measures in the classroom and/or building.
M.3.3.2 Graph points on the coordinate plane to solve real-world and mathematical problems. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	Solve at least three real-world problems that require graphing points or reading points that have been graphed.	Finding distance Reading Maps Planning an automobile trip Finding a city on a globe Tracking a hurricane	Coordinate Game: http://www.shodor.org/interactivate/activities/GeneralCoordinates/ Maze Game: http://www.shodor.org/interactivate/activities/MazeGame/ Materials: NC Highway Maps Activity: Have students work in groups of 2-4 using a highway map of North Carolina. Each group should plan a trip across the state, using the map's scale to determine mileage from point to point. Students may also identify travel direction of each leg of the trip and locate attractions on the way (using map symbols).
M.3.3.3 Classify two-dimensional figures into categories based on their properties. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	Given five triangles, identify each type and explain the properties that make it that type. Match the diagram, shape, and/or description for each shape: triangle, pentagon, quadrilateral, hexagon, and octagon.	Laying flooring or tile Quilting Landscaping Quilting patterns Highway signage Driver's license sign test	*For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.* Materials: paper triangles and polygons of various shapes and sizes and protractor. Activity: Have students sort the triangles and polygons into different piles based on visual inspections and measurements and then have them explain how they know it is the identified triangle or polygon.

M.3.3.4 Solve real world and mathematical problems involving area, surface area, and volume. a. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. b. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. c. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	Find the area of given triangles, quadrilaterals, and polygons.	Determining flooring for irregular shaped rooms or curtains for irregular shaped windows Reading house plans, determining the size of rooms Landscaping gardens of various shapes Wallpapering or painting Pouring concrete Fitting items into storage Comparing capacities of containers Building a gingerbread house Completing crafts, carpentry, and other projects Drawing scaled drawings, blueprints	Activity: Have students determine area of rooms that are not rectangles. Materials: List of formulas and assortments of squares, rectangles and triangles. Activity: Have students calculate the areas of the shapes given. Then have them find the student who has the same shape and size figure and compare areas. Have students to this for several different shapes. Materials: An assortment of everyday 3-dimensional items. Activity: Have students identify each item by its shape. Activity: Have students look at several tiled floors to see that the tiles partition the room into rows and columns. Activity: Have students draw a small blueprint of a storage shed that includes surface area for each part of the shed.

M.4 Data Analysis, Statistics, and Probability: Students will develop and apply concepts of data analysis and probability to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.4.3.1 Develop understanding of statistical variability. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "how old am I?" s not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*	Given a list of ten questions, mark the ones that are statistical questions.	Comparing information	Ask students to determine if the following questions are statistical questions and justify their answers. 1. What colors are my shoes? 2. How many pockets do I have? 3. How many different languages are spoken at our school? 4. Is my last name the longest in this class? 5. What is the favorite lunch in this class? 6. Do cars speed through the local school zone? 7. Which gum holds it flavor longer? Give students two strips of paper and have them write one question on each strip; one that is a statistical questions and one that is not. Discuss results.

M.4.3.2 Develop understanding of statistical variability. Understand that a set of data collected to answer statistical questions has a distribution which can be described by its center, spread, and overall shape and recognize that a measure of variation describes how its values vary with a single number.	Given a set of questions, identify all that are statistical questions. Describe the center, spread and shape of a set of statistical data.	Participating in conversations about represented data Presenting information to children or co-workers Interpreting statistical data accurately Determine the validity of information presented as statistical data	Activity 1: Give students data from real-life situations. Have the students generate a list of decision to be made about arranging the data in graphic form. Ask the class to compile a list of different types of graphs and appropriate times to use each type of graph. Have the students determine which type of graph would fit their data. Activity 2: In groups of four, write an opinion question. For example: "Do you prefer Coke™, Pepsi™, or RC Cola™? Do you prefer Hardees™, McDonalds™, or Wendy's™? Which team will you root for – NC State, Carolina, or Duke?" Develop a plan to gather data. Decide how many people to survey. What would be an appropriate sample? After gathering data, organize it and decide how to represent it in graphic form. Create the graph. Present graphs and explain why you chose that type of data display. Activity: Bring in sample statistical data from real world problem and have students describe the center, spread, and shape.
M.4.3.3 Summarize and describe distributions. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	Determine the number of items represented on a simple scatter plot, and then use a given set of data to make a simple scatter plot.	Keeping a visual tally of responses by category Further study in mathematics	Have students collect data and make scatter plots, histograms, and box plots.
M.4.3.4 Represent and Interpret data. Make a line plot to display a data set including data sets involving fractions. Solve problems involving information presented in line plots.	Determine the answers to questions about a given line plot.	Tracking wages when paid an hourly rate on a variable work schedule Following monthly bills in order to budget Keeping records for a club Sorting stock by size Tracking gas usage and expenditure Reading labels Displaying information in a report	*For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.* Have students create a line plot for "How many siblings do you have?" Have students analyze the data and explain how it is spread and the clusters created. Ask, "What predictions can you make about the number of siblings? What measures could be used to analyze the data?" Explain that a question has variability if the data collected can be analyzed using mean, medium, etc.
M.4.3.5 Investigate chance processes. Develop an understanding of events as certain, impossible, likely, or unlikely to occur. Understand that probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.	Given a list of ten events, identify each as (a) certain to occur, (b) impossible, (c) likely to occur, or (d) unlikely to occur.	Making a call when flipping a coin Making decisions about how weather may affect outdoor plans Predicting the outcome of a sporting event Determining the chances of winning a prize in a drawing	Materials: Two dice for each pair of students. One worksheet per student with questions about "chance" of particular outcomes on the roll of a die or a pair of dice. Activity: Complete first few worksheet questions as a group discussion, to include questions with answers of "certain" and "impossible", such as chance of a sum of 13 on the two dice. Activity: Discuss the probability of winning the lottery or other current events such as when a club is raffling off a quilt and seeing tickets. Assign a number 1-25 to students and put the same numbers in a hat. Begin to draw numbers. As the numbers are drawn, express as a fraction, decimal, and a ratio. On the board, write what the new chances of the students winning the drawing are.
M.4.3.6 Investigate chance processes. Determine the probability of basic events (e.g., in the results of	Determine the probability for at least three basic events and express the result as a ratio, fraction, or percent.	Tossing a coin Rolling dice Planning attendance at a social	Materials: Deck of cards, golf tees, assortment of buttons, bag of an assortment of candies, etc. Activity 1: Pass out three different groups to the class. Have students

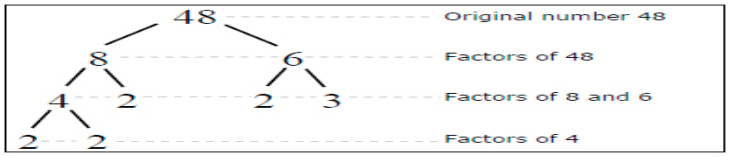
tossing a coin, rolling a die, or drawing cards from a deck of cards, chance of baby being born on a certain day of week, etc.) and express the likelihood of an occurrence as a ratio, fraction, or percent.		event Selecting a car Gambling	count total number of items and total number of like items in each grouping. Example Buttons: Have students categorize and count all the buttons, all the blue buttons, all the red buttons, etc. and determine a grand total. The instructor will retrieve items and draw one from the each grouping. Have students determine the probability of randomly picking the chosen item. You can request answer in ratio, fraction, or percent form. Students may work in groups or individually. Materials: One die for each student. One worksheet per student with questions regarding probability of particular outcomes on the roll of a die or a pair of dice.

M.5 Algebra: Students will develop and apply concepts of basic algebra, patterns, relationships, and functions to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.5.3.1 Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	Solve at least five problems using the four operations.	Almost all real world math problems involve one of the four operations	http://www.mathgoodies.com/standards/alignments/grade4.html
M.5.3.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	Choose a variable and set up at least five word problems that require multiplication and division.	Calculating hourly wages Finding distances Calculating purchases Using formulas	http://www.mathgoodies.com/standards/alignments/grade4.html
M.5.3.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Assign a variable for the unknown and write an equation for at least five multi-step word problems.	Entering an expression in a spreadsheet Increasing amounts in recipes	Materials: Sales ad, coupons, play money • Calculate the discount of an item • Calculate the final sale price • Calculate the sales tax • Calculate the amount of change Materials: Restaurant menu, order Compute order total, tax, and tip

M.5.3.4 Gain familiarity with factors and multiples. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors.	Given three whole numbers less than 100 find all factor pairs.	Solving many math problems	http://www.math-aids.com/Factors/ http://www.helpingwithmath.com/by_subject/factors_multiples/factors_multiples.htm
M.5.3.5 Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	Given three whole numbers less than 100 determine if the number is a multiple of a given one-digit number or if it is a prime number.	Solving many math problems	http://www.math-aids.com/Factors/ http://www.helpingwithmath.com/by_subject/factors_multiples/factors_multiples.htm
M.5.3.6 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.	Identify the next or missing number in at least four patterns of numbers and state the pattern, i.e., dividing by two, multiples of three, etc.	Choosing proper drill bit Creating sales tax tables Using mental math strategies Using rate tables for prices	*For example, given the rule "add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.* Give students a rule and starting number and then have them generate terms and identify other patterns. For example, given the rule "add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.
M.5.3.7 Write and interpret numerical expressions. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	Translate at least five simple word expressions into algebraic notation and then simplify each, e.g., seven times the sum of two and three = 7(2+3)=7(5)=35.	Following convention in notation and order of operation Taking tests when seeking employment Billing procedures	*For example, express the calculation "add 8 and 7, then multiply by 2" as 2 x (8 + 7). Recognize that 3 x (2100 + 425) is three times as large as the 21000 + 425, without having to calculate the indicated sum or product.* Discuss how word problem is stated and understanding the meaning of each word helps to translate it into algebraic notation.
M.5.3.8 Apply and extend previous understandings of arithmetic to algebraic expressions. Write and evaluate numerical expressions involving whole-number exponents, i.e., $4(4) = 4^2 = 16$ and $2(2)(2)= 2^3 = 8$. Understand that exponents are used to represent repeated multiplication.	Complete a table of squares and cubes for numbers 1 to 10.	Reading pollen count per cubic meter Computing with formulas on a standardized test	Create a floor plan for a dream home to include a pool in the back yard. Materials: Graph paper, ruler How many ice cubes could you put in a small storage container Materials: small cubes, small container
M.5.3.9 Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers.	Evaluate at least ten expressions.	Calculating hourly wages Finding distances Calculating purchases Using formulas Completing almost all word problems	a. *For example, express the calculation "Subtract y from 5" as 5 – y* b. *For example, describe the expression 2 (8+7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.* c. *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length s = 1/2 .*

b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).			Practice problems: 1) You earn 15n dollars for mowing n lawns. How much do you earn for mowing one lawn? seven lawns? 2) After m months, the length of a fingernail is 10 + 3m millimeters. How long is the fingernail after eight months? three years? 3) The expression 20a + 13c is the cost for a adults and c students to enter the Science Center. Find the total cost for 4 adults and 24 students After students have had some practice working with writing expressions, have them answer the following question and give the indicated examples: How can you write and evaluate an expression that represents a real-life problem? Give one example with addition, one with subtraction, one with multiplication, and one with division.
M.5.3.10 Apply the properties of operations to generate equivalent expressions.	Given an expression, student will write an equivalent expression. For example: given 3x – 3y, student would write 3(x-y) or given 2(y + 6), student would write 2x + 12	Calculating hourly wages Finding distances Calculating purchases Using formulas Completing almost all word problems	*For example, apply the distributive property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6(4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*
M.5.3.11 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	Given an expression, student will write an equivalent expression. For example: given x + x + x, student would write 3x or given 4(y + 8), student would write 4x + 32	Calculating hourly wages Finding distances Calculating purchases Using formulas Completing almost all word problems	*For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.* Engage students in a discussion by asking questions such as: How are algebraic expressions used in the real-world?, How do you know if expressions are equivalent?, How can the distributive property be used to generate equivalent expressions? As each question is discussed, be prepared to have answers and examples to model.
M.5.3.12 Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	Solve a minimum of five one-variable equation and inequalities.	Comparing costs, temperatures, interest rates, etc.	Have students complete activities such as planning a trip on a $200 budget. This activity is outlined below: 1) Students choose a place they would realistically like to visit. 2) Students research the location to complete a spread sheet including: travel expenses (plane, train, rental car, gas), lodging expenses, food expenses (breakfast, lunch, dinner, snack) and at least 1 activity 3) Complete the inequality: travel + lodging + food + activity(s) > or = $200 4) Based on research and the inequality, students assign an amount of money for each event category. 5) Students will write a word equations under each event category showing how the money will be dispersed (miles / miles per gallon = # of gallons x cost per gallon less than or equal to _____ dollars.

			6) Add numeric values to word inequalities in order to solve to make sure you come in under budget. 7) Discussion questions: What were some problems you came across when doing this activity? How did you solve them? What was helpful throughout this activity. What would have been more helpful? Extension question: What would you do differently if you had $400? or What would your ideal budget be?
M.5.3.13 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	Solve a minimum of five simple (one or two steps) real-world problems requiring them to use a variable to identify the unknown quantity.	Taking a standardized or employment test Finding the total charge on a purchase Finding the area of a square room	Have students write real world problems dealing with sewing, scrapbooks, carpentry, etc., i.e., how many shirts could be made from 6 yards of fabric if each shirt takes 1 3/8 yards of fabric per shirt? What does the remainder mean?
M.5.3.14 Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q, and x are all nonnegative rational numbers.	Solve at least three real-world problems that meet the objective criteria.	Solving problems in real life	Discuss real world problems that require multiplication.
M.5.3.15 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	Given several real world situations where two things are being compared, have students write an inequality to model each situation.	Comparing costs, temperatures, interest rates, etc.	Have students investigate real world situations such as: Is it cheaper to buy or cook dinner every night for a family of 4? Have students investigate this situation by choosing a dinner from a menu and determine the cost for a family of 4. Then find recipes to create the same dinner, create a shopping list, price the item and then create an inequality comparing the homemade dinner to the restaurant dinner, i.e., total cost of groceries (< = >) total cost of 4 dinners.
M.5.3.16 Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real world problem that change in relationship to one another; write an equation to express a quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	Solve at least two real world problems.	Traveling Estimating cost of a road trip	Activity: Have students list and graph ordered pairs of distances and times, and write an equation to represent the relationship between distance and time for problems involving motion at a constant speed. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.*

M.1 Number Sense and Operations: Students will develop and apply concepts of number sense and operations to explore, analyze, and solve a variety of mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.1.4.1 Fluently add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. [Note: Applications involving financial literacy should be used.]	Solve at least five problems that require adding, subtracting, multiplying, and dividing using decimals.	Working with money Paying bills Balancing checking account	Materials: Sales papers such as grocery store ads for each student. Activity 1: To practice addition, direct students to calculate total cost of 2 different items of different costs. Repeat exercise with 3 or more items of different cost. Activity 2: To practice subtraction, ask how much they would have left if they went to the grocery with $20 and purchased those items on a sales tax free day. Activity 3: To practice multiplication, direct students to calculate total cost if they buy 3 of the same item. Repeat exercise with 4 or more items of another item. Variations can include purchase of multiple items that are "buy one, get one free". Activity 4: To practice division, direct students to calculate cost per item or cost per pound of something that is priced at 2 for ____. Repeat exercise with items that are 5 per ____, etc.
M.1.4.2 Compute fluently with multi-digit numbers and find common factors and multiples. Fluently divide multi-digit numbers using the standard algorithm.	Find common factors for three numbers and complete at least three division problems using the standard algorithm.	Buy a car Follow a recipe Decorate your home Dividing recipes	Creating a factor tree for a number makes it easier to find its prime factors. These prime factors are used to help find the greatest common factor. Have students use a "factor tree" to find prime factors and then greatest common factors.  Videos: http://www.virtualnerd.com/common-core/grade-6/6_NS-number-system/B/
M.1.4.3 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factors. *For example, express 36 + 8 as 4(9+2).*	Identify all the factors of at least five numbers between 40 and 100, e.g., 72 is divisible by 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, and 72.	Dealing with money, breaking larger bills into smaller amounts Computer algorithm especially in in security larger prime numbers are used Preparing for higher level study	Materials: One box of toothpicks per pair of students. Activity 1: Assign student pairs specific numbers. Have them count that many toothpicks, then try to divide them into 2, 3, 4, etc. equal size piles. Each pair should report results to entire class, including writing factors on the chalkboard. Activity 2: Write the numbers 1-100 on blank index cards. Divide the cards between teams. Call out a number from 1-100 and have each team hold up any cards they have that are factors of that number. Write these factors on the board and show the multiplication relationship. Activity 3: Students work in groups of 2-4 using a highway map of North Carolina. Each group should plan a trip across the state, using the map's scale to determine mileage from point to point. Students could also identify travel direction of each leg of the trip and locate attractions on the way (using map symbols).

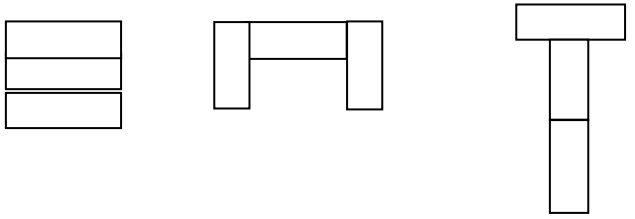
M.1.4.4 Apply and extend previous understandings of numbers to the system of rational numbers. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	Given a list of positive and negative numbers, order from least to greatest then draw a number line and plot at least five given numbers (1.5, -2.5, -5, 4.2, etc.) in the correct position on the number line.	Temperature above/below zero Elevation above/below sea level Credits/debits Positive/negative electric charge Preparing for further study in algebra or higher math	Activity: Discuss with students how negative numbers are used in daily life, i.e., negative temperatures, debits to checking accounts, etc.
M.1.4.5 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., – (– 3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	Given a set of integers with opposite signs, students can correctly place them on a number line and describe the concept of opposite. Given a set of ordered pairs, students can correctly place them on a coordinate plane. Given a graph, students can demonstrate reflections.	Reading a bank statement to determine account balances. Understanding rising and falling temperatures. Understanding above and below sea level. Gaining and losing yards in a football game. Determining gains and losses in the stock market.	Compare temperatures in different cities: http://www.illustrativemathematics.org/illustrations/277
M.1.4.6 Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.	Given a list of rational numbers, students can place them in order on a number line and orally explain how they are ordered. Given an absolute value, students	Temperature above/below zero Elevation above/below sea level Credits/debits Positive/negative electric charge	Solve problems about US cities that are above and below sea level: http://www.illustrativemathematics.org/illustrations/288 a. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right. b. For example, write –3°C > –7°C to express the fact that –3 °C is warmer

b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. d. Distinguish comparisons of absolute value from statements about order.	can describe that it means how far away a number is from 0. Given some statements involving comparisons, students can determine which involve absolute value and which involve order.		than –7°C. c. For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars. d. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.
M.1.4.7 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	Given a list of ordered pairs, a student can correctly place them on a coordinate plane.	Using a map to determine location. Determining the best location to build a building in a certain area.	Find locations in a city: http://www.cpalms.org/Public/PreviewResource/Preview/29281
M.1.4.8 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. b. Understand $p + q$ as the number located a distance $\| q \|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + – q$) . Show that the distance between two rational numbers on the	Complete at least ten problems requiring addition and subtraction of rational numbers.	Checking account deposits and withdrawals Making purchases Paying taxes Figuring tips	Have students brainstorm situations where opposite quantities combine to make 0 in the real world. For example, if a check is written for the same amount as a deposit, made to the same checking account, the result is a zero increase or decrease in the account balance. Have student practice adding and subtracting rational numbers by using a number line to show their work to complete problems such as: a. 2.7 + (−3.4) b. 3/10 + -9/10 c. -6/10 – 1 3/10 d. 1.3 + (−3.4) e. −1.9 − 0.8

number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.			
M.1.4.9 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not 0, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, $-(p/q) = (-p)/q = p/(q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	Complete at least ten problems requiring multiplication and division of fractions.	Rational numbers are fractions Taxes are a fraction of the income or the purchase amount If you share a pizza or a bag of popcorn, you each get a fraction Interest rates on loans and mortgages Interest on a savings account is a fraction. Taxes on gasoline are fractions of the amount purchased Halving a recipe. Splitting a half-gallon of milk between children. Cutting a 3½ foot board into several pieces.	Explanation of rational numbers: http://www.mathsisfun.com/algebra/rational-numbers-operations.html Examples of real-world problems involving rational numbers. http://www.ck12.org/na/Real-World-and-Mathematical-Problems-with-Rational-Numbers---7.NS.3-1/lesson/user%3Ac2ZveDJAb3N3ZWdvLm9yZw../Real-World-and-Mathematical-Problems-with-Rational-Numbers---7.NS.3/ Have students solve problems such as: How much chocolate will each person get if 3 people share 1/2 lb. of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?
M.1.4.10 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	Complete at least five word problems involving division of fractions by fractions.	Dividing recipes Dividing land to meet zoning requirements Carpentry and constructions when objects need to be evenly spaced along a length.	Have students practice with problems. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/ 4) = 8/9 because 3/4 of 8/9 is 2/3. How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?

M.1.4.11 Solve real-world and mathematical problems involving the four operations with rational numbers.	Complete at least five real-world problems requiring the use of rational numbers.	Reading temperatures Showing negative bank balance	Have students practice solving real world problems involving rational numbers. For example: The temperature at 2:30am was -10^0. At noon, the temperature had risen 16^0. At 5:00pm the temperature had dropped 8^0. What was the temperature at 5:00pm?
M.1.4.12 Know that there are numbers that are not rational, and approximate them by rational numbers. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).	Have student explain/show how to get better approximations for irrational numbers and locate them on a number line.	Estimating measurement when using operations with pi such as circumference.	Activity: Have students explain/show that by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.
M.1.3.13 Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$. For example, "This recipe has a ratio of 3 cups of flour to 4 coups of sugar, so there is a 3/4 cup ratio of flour for each cup of sugar." We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."	Construct at least five ratios that relate to the classroom, i.e., students/teacher, tables/chairs, males/females, glasses/no glasses, etc. and interpret ratio for at least two examples from real life.	Servings per container Reading map scales, reading recipes Reading game scores, i.e., wins/losses	Materials: 2 pennies and 1 die (1 of a pair of dice) per student. Activity: Direct students to observe one coin and write the ratio of 1 head:1 tail, then to observe one die and write the ratio of 1 "6": 5 "not 6". Ask how many sides of the die are even numbers and how many are odd, and what ratio they would write for that. Explain that ratios, like fractions, should be reduced, so they should write that as 1:1 rather than 3:3. Students can then practice writing ratios by listing the possible genders of two non-twin children. Verify that they show 4 possibilities in the "sample space", then direct them to write ratios for boys:girls, same gender:not same, and both girls:other possibilities.
M.1.4.14 Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. c. Find a percent of a quantity as a rate per 100, solve problems involving finding the whole, given	Complete at least five problems involving ratio.	Mixing chemicals, paint, cleaning products Converting units of measure	*Have students work with real world unit rate problems. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?* *Mark was mixing red and yellow paint In a ratio of 2:3 to orange paint. He wants to make a 45 liters of orange paint. He began by making a table that showed 2 liters of red paint mixed with 3 liters of yellow paint would yield 5 liters of orange paint. He then added another row to his table was 4 liters of red paint mixed with 6 liters of yellow paint would yield 10 liters of orange paint. How would you continue to add values/rows to the table?*

a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.			
M.1.4.15 Analyze proportional relationships and use them to solve real-world and mathematical problems. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	Complete at least five problems using ratio and proportion to find percents, dimensions, ratios, and scales.	Diluting a liquid in a given ratio (e.g., weed killer, paint) Recognizing when a problem can be solved using proportions Adjusting a recipe for a larger or smaller number of servings	Materials: Measuring spoons and cups. Activity: Have students convert a recipe for making a pie for four people to making a pie for 16 people. Ask the students to multiply each designated recipe 4 times the amount to increase the recipe. Extend to other real world examples. For example, if a person walks 1/2 mile in each 1 / 4 hour, compute the unit rate as the complex fraction (1/2)/(1/4) miles per hour, equivalently 2 miles per hour.
M.1.4.16 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. d. Explain what a point *(x, y)* on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r)* where *r* is the unit rate.	Complete at least ten problems that require identifying proportional quantities.	Dividing sticks of butter, i.e., 1/2 stick = 1/4 cup Reading and interpreting scales on a map	*For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* Materials: A measuring cup for each group, a gallon of iced tea for each group, a clean container for each student in various shapes and sizes. Activity 1: Students measure 1 cup of drink in each container. Although in the containers they do not look the same, they are proportional.
1.4.17 Use proportional relationships to solve multistep ratio and percent problems.	Solve at least three multi-step real-world problems involving ratios and percents.	Calculating simple interest, taxes, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error	*Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.* Have students practice solving multi-step problems. For example: if A Recipe for 12 servings of pancakes uses 3 cups of flour and 2 cups of milk. If you were making pancakes for a church group and needed to feel 120 people, how much flour and milk would you need? Show how you arrived at your answer.

M.2 Measurement: Students will develop and apply concepts of standard measurements and use measurement tools to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.2.4.1 Geometric measurement: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. b. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	Solve at least 3 real world problems involving volume.	Filling a sand box or garden with mulch Determining the size package for different products/items Determining how much wrapping paper for wrapping gifts Determine amount of fabric needed to cover an item	Materials: 1 cube, 1 rectangular tissue or gift boxes, measuring tape, ruler, formula cards, construction paper, scissors, glue. Activity 1: Using formula cards measure, calculate, and record the volume of the cube and rectangular box. Activity 2: Measure the length of one side of the cube. Measure and cut out six squares of construction paper to fit. Using formula card, calculate the area of the square and write it on each square piece. Add the six areas for a total surface area. Paste the squares onto the cube. Using the formula card, calculate and record the total surface area of the cube. Do the two totals match? Activity 3: Measure the length and width of each side of the rectangular box. Measure and cut out a shape of construction paper to fit each side. Using the formula card, write the area of each piece. Add the six areas to get a total. Paste the shapes onto the box. Using the formula card, calculate, and record the total surface area of the rectangular box.
M.2.4.2 Measure common three-dimensional shapes (e.g., a room, window, box, etc.) and represent the information as a scale drawing. Interpret and use scale drawings to solve real world and mathematical problems.	Measure at least one 3-D shape and represent the information as a scale drawing.	Creating plans for building a model Drawing plans for a carpentry project or completing a project using a scale drawing Creating a pattern for a sewing project or making quilt blocks from a scale drawing	Materials: Measuring tool (ex: tape measure, ruler, meter stick). Activity: Measure common 3-dimensional shapes (e.g. a room, window, box, etc.) and represent the information as a scale drawing. Give the students an object/area to measure.
M.2.4.3 Calculate the perimeter and area of basic irregular or composite shapes, i.e., shapes formed by a combination of rectangles and triangles using formulas provided.	Calculate the perimeter and area of at least three composite shapes using formulas provided.	Estimating amount of material required to cover a piece of furniture	Materials: 3 rectangular classroom tables and tape measure, formulas. Activity 1: Have students measure, calculate, and record the perimeter and area of each table. Arrange the tables in each of the following patterns. Then have students measure the perimeter and area of each new arrangement and record their findings. Which gives the most seating places? Is there another way to arrange the tables? Which do you like best? 

M.3 Geometry: Students will develop and apply concepts of geometric properties, relationships, and methods to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.3.4.1 Draw, construct and describe geometrical figures and describe the relationships between them. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	Describe the relationship between given geometrical figures.	Quilting Scrapbooking	Activity 1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. Activity 2: Draw (freehand, with ruler and protractor, and/or with technology) geometric shapes that meet given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
M.3.4.2 Solve real-world and mathematical problems involving angle, measure, area, surface area, and volume. a. Know the formulas for the area and circumference of a circle and use them to solve problems; given an informal derivation of the relationship between the circumference and area of a circle. b. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. c. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	Given a circular object, identify and measure the diameter, circumference, and radius and explain how the measurements compare. Solve at least five real-world problems involving angles, area, volume and surface area.	Measuring automobile tires Designing circular gardens Making circle graphs Determining the length of material needed to go around a circular table Building a playground Making toys Doing crafts Estimating where a line of symmetry would fall in a rectangular object Cutting molding for a corner	Activity: Use circular tables or drawn circles to actually measure and map out the various components of a circle. Cut out circles, then measure and cut the circles into quarter pieces. This will give a representation of the radius and circumference. Then bring them together to show the center. Materials: tape measures and an assortment of circular objects such as paper plates of varying sizes, plastic lids, etc. Activity: Have students calculate the circumference of several circles, then have them measure to check their answers Activity: Bring in empty boxes of different shapes and have students determine the surface area and volume. Have student make scale drawing of some containers. Materials: Protractor, ruler, pencil. Activity: Use a protractor and ruler to draw 5 different size triangles with 2 given measures. First have the students estimate the unknown angle. Then have students use a protractor and calculate the unknown angle. Have students solve for unknown angles in a figure.
M.3.4.3 Understand congruence and similarity using physical models, transparencies, or geometry software. a. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two congruent figures, describe a	Given at least six different figures, identify the figures that are similar and then identify the figures that are congruent. Explain why. Identify the relationship between all angles made when two parallel lines are cut by a transversal.	Cutting molding at a correct angle so that both ends meet with no space in between Cropping photographs Assembling items bought unassembled (e.g., toys, exercise equipment, furniture) Enlarging or reducing the size of photographs	For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so. Materials: protractors Activity: Draw a pair of parallel lines cut by a transverse line. Use a protractor to measure each angle. Compare the complementary angles around each intersection. Show how the pairs of angles equal 180° and how the angles add up in various pairs. Additionally, once all of the angles have been colored in, show the comparison of the angles in the different areas of intersection.

sequence that exhibits the congruence between them. b. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. c. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.			Materials: Strips of paper Activity: Give each student 3 strips of paper. Have students use the strip of paper to create a triangle by placing the strips together corner-to-corner. Have students compare their triangle to another student's triangle. Are they congruent? Encourage students to prove the triangle are congruent using the definition of congruent triangles.
M.3.4.4 Understand and apply the Pythagorean Theorem to find the distance between two points in a coordinate system and to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	Use the Pythagorean Theorem to solve four real-world problems; two that involves finding the distance between two points and two problem that involves determining the unknown side length in a right triangle.	Building projects Quilting and Scrapbooking Determine distances on a map when given coordinates.	Materials: basic right triangles of different sizes and rulers. Activity: Give each pair of students a right triangle. Have them measure each side using the ruler. Then have them put the numbers for two of the sides into the Pythagorean Theorem and solve for the third side. Does their solution match their measurement? Is it close? Discuss what may cause minor errors. Have students solve for different sides, then have students do this with a different size right triangle.

M.4 Data Analysis, Statistics, and Probability: Students will develop and apply concepts of data analysis and probability to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.4.4.1 Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurements. c. Giving quantitative measures of center (median and/or mean) variability (interquartile range and/or mean absolute deviation),	Given a data set, identify the mean, median, mode, minimum, maximum, and spread of the data and explain how the spread affects the mean and median.	Estimating one's daily expenses Explaining the median salary or median years worked in company statistics Debating proposed rent increases Interpreting statistical data accurately Reading temperature charts and population graphs Using a graph to illustrate the breakdown of household expenses while describing them orally	Activity: Have students guess the average number of siblings each class member has. Have the students tally the number of siblings in each family. Using the data, calculate the mean, median, and mode. Compare the actual results to the guess. Materials: Pens, pencils, students', post-it-notes, board on which to stick the notes. Activity: Have the students write their ages on the notes and place them on the board in columns or in a number-line fashion. Ask, "What is the minimum age? What is the maximum age?" The spread is the range between minimum and maximum. Remind the students that the median = the middle value (think: median strip is in the middle of the road). The mean is the average of all values. Determine the median (middle) value. Determine the mean (average) value. Then remove the lowest/highest value and see the difference on the mean. Did the median change? Why or why not? (Could be done with prices on store flyers.)

as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distributions and the context in which the data was gathered.			
M.4.4.2 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a change process.	Have students complete problems such as, "if a student is selected at random from the class, find the probability that you will be selected and the probability that a girl will be selected.	Understanding changes	*For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* Have students experiment with different probability models, i.e., tossing a penny, tossing a paper cup and recording if it lands open end up or down. Discussing the outcomes, i.e., do they appear to be equally likely based on observations. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down.* Do t*he outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
M.4.4.3 Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Represent sample spaces for compound events using methods such as lists, tables and tree diagrams.	Given a compound event, list all the possible outcomes.	Playing games of chance Modeling experiments	Use objects to perform an experiment, in pairs/groups for a compound event such as flipping coin and rolling a die: a. Take turns performing combination of events. b. List each result as an ordered pair, for example (H, 2). Each student in the group should record all outcomes, not just their own. c. Have students repeat event combinations a total of times equaling the total number of possible outcome combinations (i.e. if they're flipping a coin and rolling the die they should perform the experiment a total of 12 times). d. For each theoretical probability that they previously Repeat activity with a different combination of events.
M.4.4.4 Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association,	Given several scatter plots have students identify and describe patterns. Given a linear association, have students find the line of best fit.	Understanding relationships and patterns in real world data	Have students construct scatter plots and investigation any patterns of association. Have students practice with other real world situations. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.

linear association, and nonlinear association. a. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. b. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.			
M.4.4.5 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for row or columns to describe possible association between two variables.	Answer at least five questions about a two-way bivariate frequency table.	Interpreting data from studies, surveys, and experiments.	Have students conduct a survey to collect bivariate data and use the data collected to construct a table. For example: males versus female and favorite colors. Collect data from students in your class on whether or not they like to cook and whether they participate actively in a sport. Is there evidence that those who like to cook also tend to paly sports?
M.4.4.6 Use random sampling to draw inferences about a population. a. Understand that statistics can be used to gain information about a population by examining a sample of the population. Understand that random sampling tends to produce representative samples and support valid inferences. b. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	Given a random sample, have students make inferences about the population. Note: Using the financial report of a well-known company – either online or paper copy – restate their information into a simple form.	Understanding how inferences about a group of people are made from a sample	Activity: Estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

M.4.4.7 Draw informal comparative inferences about two populations. a. Informally assess the degree of visual overlap of two numerical data distributions with similar variability, measuring the difference between the centers by expressing it as a multiple of a measure of variability. b. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	Given two sets of data, have students describe the measures of variability between the two populations.	Recognizing variability with real world data	*For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.* Activity: Decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

M.5 Algebra: Students will develop and apply concepts of basic algebra, patterns, relationships, and functions to explore, analyze, and solve mathematical and real-life problems.			
Benchmark	**Performance Indicator**	**Examples of Where Adults Use It**	**Teaching Activities**
M.5.4.1 Use properties of operations to generate equivalent expressions. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Simplify at least five algebraic expressions that require combining like terms, e.g., $3a + 5a$ or $3(x + y) + 2(x – y)$, etc.	Preparing for further study Helping children with homework	Materials: M&M's and pennies. Activity 1: Give each student 5 pennies. Have the students add 1p + 1p, 1p + 2p, etc. Repeat with M&M's. Activity 2: Have one student lay small groups of pennies down and another student write an algebraic equation to represent the expression. Activity 3: When the students are ready, use the pennies and M&M's in the same expression, 2p + p + 3m + 2m, simplify.
M.5.4.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	Complete at least five problems where the learners explains what the equation means.	Finding a price increase of 10% Finding a cost-of-living salary increase	*For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."* Materials: The cost of several items currently and the cost of that same item a year earlier. Activity: Have student find the percent increase or decrease for the items given.
M.5.4.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	Solve a minimum of ten real-life word problems using whole numbers, decimals, and percents that require addition, subtraction, multiplication, and division. Identify extraneous information given (information not needed to solve the problem) in at least five word problems.	Understanding city, state, and federal budgets Understanding payroll deductions Comparing price per item/weight when viewing traditional unit price tags at stores Reading unit price to determine best buy Ordering from a catalog or Internet	*For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.* Materials: Payroll stubs, sale papers, and catalogs. Activity: Have students use payroll stubs to calculate the percent paid in different types of tax or insurance. Use sale papers to compare prices and find unit prices, sales tax, shipping and handling fees, etc. Materials: Worksheets of word problems that have extra information. Activity: Have students work in pairs to identify the extra information. They do not need to solve the problems. Discuss why it is important to be able to identify this extra information, i.e., in real-life there is often more information than you need to solve a particular problem.

M.5.4.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	Given a set of real word problems involving algebraic expressions, students are able to create and solve equations and inequalities that represent the problems. Examples 1: If the area of a rectangle is 72 cm. Its length is 12 in. What is its width? Example 2: Jan works at the local car dealership on commission. She is paid $1,000 per month plus $500 per sale. Write an inequality for the number of sales Jan needs to make if she wants her pay to be at least $4,500 per month.	Determining how much of a product has to be sold in order to make a profit. Laying out the foundation of a building. Finding out how many bundles of shingles are needed to cover a roof. Determining how many employees are necessary to work during peak times at a restaurant.	Examples: a. *The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?* b. *As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.* To go on a class trip to a restaurant, the class needs to raise at least $200. Brainstorm things the class could sell to raise money. Then, create an inequality that shows how many of the item would need to be sold in order to get enough money to go to the restaurant. Have students work in groups to solve real life problems, present their strategy and answer. 1) Tisha has $60 to spend to buy a coat for her daughter online. She has a promotional code that can be used to save 1/5 off the cost before shipping or for free shipping. If shipping costs are $1.75 for each $10 spent, how should she use her promotional code? Justify your answer. 2) Malie and her sister won a $45 iTunes gift card. They agree to split the money so that Malie gets 2/3 of the value and her sister gets the rest. If songs on iTunes cost $1.29, how many songs will each sister be able to buy?
M.5.4.5 Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions.	Simplify at least ten expressions that require adding, subtracting, multiplying, or dividing expressions involving exponents.	Ordering concrete (e.g., cubic yards) Understanding exponential growth of bacteria or virus such as HIV Understanding the path a ball takes when thrown	Discuss with students where exponents are used in real world problems. Like the quadratic equation for the path when throwing a ball (parabola) or the drive of a golf ball. Have students practice with exponential problems such as $3^2 \times 3^{(-5)} = (1/3)^3 = 1/27$.
M.5.4.6 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √ 2 is irrational.	Write a short narrative explaining how squaring and taking the square root are related and evaluate problems that involve square and cube roots.	Estimating the number of tiles needed to cover a rectangular floor	Have students explain to each other how squaring and taking the square root relate.
M.5.4.7 Use scientific notation. a. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. b. Perform operations with numbers expressed in scientific notation, including problems where both	Complete a minimum of five problems requiring the interpretation of scientific notation, e.g., write 2.4×10^5 in standard form or write .000075 in scientific notation.	Computing lottery winnings Expressing great distances	*For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.* Materials: Computer with Internet access, worksheet with large and small numbers (such as the distance of planets from the sun) Activity: Have students watch a YouTube video showing large and small numbers such as *From Quarks to Outer Space*. After instructor demonstration, have students complete the worksheet. Activity: Have students estimate the population of different countries around the world using scientific notation. For example, estimate the

decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.			population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger. For example, for very small quantities use millimeters per year for seafloor spreading .
M.5.4.8 Understand the connections between proportional relationships, lines, and linear equations. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	Given a set of proportions, lines, and linear relationships, students are able to represent them as graphs and tables and determine relationships between them.	Looking at data shown in different ways to determine which product or service to buy. Knowing when to leave in order to reach a destination at a certain time. Examining flow rates to determine how long it will take a container to fill.	*For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.* Create a graph and table that show the number of texts students (or their children) receive each hour of the day. Have students work in groups and then do a gallery walk to view others' work.
M.5.4.9 Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Solve a set of linear equations in one variable.	Solving algebraic equations containing multiple operations Helping children with homework Preparing for further study	Practice with real world problems that require solving linear equations. Discuss when sometimes it is easier to break down a problem into smaller parts.
M.5.4.10 Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables	Given a set of equation systems that include real world examples, students would solve at least 80% correctly.	To solve mixtures: how many ounces of 70% dark chocolate and 20% milk chocolate would you need to mix to get 16 ounces of 40% dark chocolate?	Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6. Use sticky notes and a white board to represent x and y values to help solve equation systems. This and other activities for equation systems can be found at: http://www.pinterest.com/tracywogoman/teaching-unit-2-systems-of-equations/ For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.

algebraically, and estimate solutions by graphing the equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. See example.			
M.5.4.11 Define, evaluate, and compare functions. a. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. b. Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.	Given a set of relations, students are able to define which ones are functions. Given a function, students are able to represent it algebraically, graphically, numerically, as a table, and verbally. Given a set of equations, students are able to determine which ones are linear. **Note: Function notation is not required.**	Comparing sales figures shown in a table and a graph to determine which store has better sales. Determine how long it would take to fully charge a cell phone battery.	*For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.* For understanding functions, garbage collections in the United States: http://www.illustrativemathematics.org/illustrations/1165 For comparing functions shown in different ways: battery charging: http://www.illustrativemathematics.org/illustrations/641 For interpreting linear functions: introducing linear functions: http://www.illustrativemathematics.org/illustrations/813
M.5.4.12 Use functions to model relationships between quantities. a. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. b. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Given two quantities, students are able to both create a function and model it in a graph and table and describe the situation it shows, its initial value, rate of change, shape, and movement.	Functions describe the world around us: the length of an object's shadow is a function of the object's height and time of day. Supply and demand can be determined by a function: as price increases, demand decreases. A person's total pay is determined by a function of the number of hours they work and their hourly rate of pay. Fuel efficiency is determined by the number of miles driven per gallon of gas.	Determine how long it would take to clean all the windows in a room at your class location. Have students determine how long it would take to clean a 2 foot by 2 foot section and then use that information to decide how long it would take to clean all the windows. Have students represent their answer first using a table and then and then making a graph. Have them discuss the changes they see as the graph moves from the start of the task to the finish.

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Mathematics Level 1: Student Checklist **Name: _____**

M.1.1 Number Sense and Operations	**Date**
M.1.1.1 Understand place value. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following special cases: a. 10 can be thought of as a bundle of ten ones – called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, … eight, or nine ones. The numbers 10, 20, 30, 40, 50, 60, 70, 80 90 refer to one, two three, four, five, six, seven, eight, or nine tens (and 0 ones).	
M.1.1.2 Understand place value. Compare two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	
M.1.1.3 Use place value understanding and the properties of operations to add and subtract. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	
M.1.1.4 Use properties of operations to add and subtract. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range of 10-9 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	
M.2.1 Measurement	**Date**
M.2.1.1 Measure lengths indirectly and by iterating length units. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.	
M.2.1.2 Measure the length of an object twice, using length units of different lengths for the two measurements and describe how the two measurements relate to the size of the unit chosen.	
M.3.1 Geometry	**Date**
M.3.1.1 Analyze, compare, create, and compose shapes. Analyze and compare two- and three-dimensional shapes, in different sizes and orientation, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	
M.3.1.2 Reason with shapes and their attributes. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	
M.4.1 Data Analysis, Statistics, and Probability	**Date**
M.4.1.1 Identify and name various simple visual data (graphs, charts, tables) found in authentic publications.	
M.4.1.2 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than another.	
M.5.1 Algebraic Thinking	**Date**
M.5.1.1 Understand and apply properties of operations and the relationship between addition and subtraction. Apply properties of operations as strategies to add and subtract.	
M.5.1.2 Understand subtraction as an unknown-addend problem.	
M.5.1.3 Add and subtract with 20. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). Add and subtract within 20, demonstrating fluency for addition and subtraction with 10. Use strategies such as counting on: making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	
M.5.1.4 Work with addition and subtraction. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.	
M.5.1.5 Work with addition and subtraction. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.	
M.5.1.6 Represent and solve problems involving addition and subtraction. Solve word problems that call for addition and subtraction of whole numbers less than or equal to 20. Apply commutative property of addition and associative property of addition to add. Understand subtraction as an unknown-addend problem.	

Mathematics Level 2: Student Checklist **Name: _____**

M.1.2 Number Sense and Operations	**Date**
M.1.2.1 Understand that the three digits of a three-digit number represents amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following special cases: a. 100 can be thought of as a bundle of ten tens – called a "hundred." b. The numbers 100, 200, … 900 refer to one, two, … nine hundreds (and 0 tens and 0 ones).	
M.1.2.2 Count within 1000; skip-count by 5s, 10s, and 100s.	
M.1.2.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	
M.1.2.4 Compare two three-digit numbers based on meanings of hundreds, tens, and ones digits, using >, =, < symbols to record the results of comparisons.	
M.1.2.5 Add up to four two-digit numbers using strategies based on place value and properties of operations.	
M.1.2.6 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, and ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	
M.1.2.7 Use place value understanding and properties of operations to add and subtract. Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.	
M.1.2.8 Use place value understanding and properties of operations to add and subtract. Explain why addition and subtraction strategies work, using place value and the properties of operations.	
M.1.2.9 Use place value understanding and properties of operations to perform multi-digit arithmetic. a. Use place value understanding to round whole numbers to the nearest 10 or 100. b. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction.	
M.1.2.10 Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations	
M.1.2.11 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	
M.1.2.12 Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	
M.1.2.13 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on the number line. b. Recognize and generate simple equivalent fractions, e.g., ½ = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	
M.2.2 Measurement	**Date**
M.2.2.1 Measure and estimate lengths in standard units. Estimate length units using units of inches, feet, centimeters, and meters. Measure to determine how much longer one object is than another, expressing the length difference in terms of standard length unit.	
M.2.2.2 Relate addition and subtraction to length. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1,, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.	
M.2.2.3 Solve problems involving measurement and estimation of intervals of time. Tell and write time to the nearest minute and measure time intervals in minutes.	
M.2.2.4 Solve problems involving measurement and estimation of liquid volumes and masses of objects. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilogram (kg), and liters (l). Add, subtract, multiply or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	

M.2.2.5 Geometric measurement: Understand concepts of area and relate to area of multiplication and addition. Recognize area as an attribute of plan figures and understand concepts of area measurement. a. A square with a side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure, which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. c. Measure areas by counting unit squares (square cm, square m, square ft and improvised units).	
M.2.2.6 Geometric measurement: Relate area to the operations of multiplication and addition. a. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. b. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a x b and a x c. Use area models to represent the distributive property of mathematical reasoning.	
M.2.2.7 Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	
M.3.2 Geometry	**Date**
M.3.2.1 Reason with shapes and their attributes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	
M.3.2.2 Reason with shapes and their attributes. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of, etc,* and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	
M.3.2.3 Reason with shapes and their attributes. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	
M.3.2.4 Reason with shapes and their attributes. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	
M.4.2 Data Analysis, Statistics, and Probability	**Date**
M.4.2.1 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories.	
M.4.2.2 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.	
M.4.2.3 Solve one- and two-step problems "how many more" and "how many less" problems using information presented in scaled bar graphs.	
M.5.2 Algebraic Thinking	**Date**
M.5.2.1 Represent and solve problems involving addition and subtraction. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, wit unknowns in all positions.	
M.5.2.2 Represent and solve problems involving multiplication and division. a. Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. *b.* Interpret whole-number quotients of whole numbers.	
M.5.2.3 Multiply and divide within 100. a. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division properties of operations. Know from memory all products of two one-digit numbers. c. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.	
M.5.2.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	
M.5.2.5 Understand properties of multiplication and the relationship between multiplication and division. Apply properties of operations as strategies to multiply and divide. Note: Students need not use formal terms for these properties.	
M.5.2.6 Understand division as an unknown-factor problem.	
M.5.2.7 Solve problems involving the four operations, and identify and explain patterns in arithmetic. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
M.5.2.8 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.	

Mathematics Level 3: Student Checklist **Name: _____**

M.1.3 Number Sense and Operations	Date
M.1.3.1 Generalize place value understanding for multi-digit whole numbers. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right and 1/10 of what it represents in the place to its left.	
M.1.3.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	
M.1.3.3 Use place value understanding to round multi-digit whole numbers to any place.	
M.1.3.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	
M.1.3.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
M.1.3.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
M.1.3.7 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	
M.1.3.8 Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.) b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	
M.1.3.9 Use place value understanding to round decimals to any place.	
M.1.3.10 Perform operations with multi-digit whole numbers and with decimals to hundredths. Fluently multiply multi-digit whole numbers using the standard algorithm.	
M.1.3.11 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
M.1.3.12 Extend understanding of fraction equivalence and ordering. Explain why *a* fraction *a* / *b* is equivalent to a fraction (*n* x *a*) (*n x b*) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	
M.1.3.13 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1 / 2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	
M.1.3.14 Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers. Understand a fraction *a* / *b* with *a* > 1 as a sum of fractions 1 / *b*. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.	
M.1.3.15 Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	
M.1.3.16 Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	
M.1.3.17 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a* / *b* as a multiple of 1 / *b*. *b.* Understand a multiple of *a* / *b* as a multiple of 1 / *b*, and use this understanding to multiply a fraction by a whole number. *c.* Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.	
M.1.3.18 Understand decimal notation for fractions, and compare decimal fractions. Use decimal notation for fractions with denominators 10 or 100.	
M.1.3.19 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	

M.1.3.20 Use equivalent fractions as strategy to add and subtract fractions. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	
M.1.3.21 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	
M.1.3.22 Apply and extend previous understanding of multiplication and division to multiply and divide fractions. Interpret a fraction as division of the numerator by the denominator ($a / b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	
M.1.3.23 Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a)/(n×b) to the effect of multiplying a/b by 1.	
M.1.3.24 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	
M.1.3.25 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. b. Interpret division of a whole number by a unit fraction, and compute such quotients. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.	
M.2.3 Measurement	**Date**
M.2.3.1 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems (by using an equation with a symbol for the unknown angle measure).	
M.2.3.2 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	
M.2.3.3 Convert like measurement units within a given measurement system. Convert among different-sized standard measurement units within a given measurements system, and use these conversions in solving multi-step, real world and mathematical problems.	
M.2.3.4 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	
M.2.3.5 Geometric measurement: Understand concepts of angle and measure angles. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the pints where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle” and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. c. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	
M.2.3.6 Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. c. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	

Mathematics Level 3: Student Checklist, Page 3

M.3.3 Geometry	**Date**
M.3.3.1 Draw and identify lines and angles, and classify shapes by properties of their lines and angles. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	
M.3.3.2 Graph points on the coordinate plane to solve real-world and mathematical problems. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	
M.3.3.3 Classify two-dimensional figures into categories based on their properties. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	
M.3.3.4 Solve real world and mathematical problems involving area, surface area, and volume. a. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. b. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. c. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	
M.4.3 Data Analysis, Statistics, and Probability	**Date**
M.4.3.1 Develop understanding of statistical variability. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	
M.4.3.2 Develop understanding of statistical variability. Understand that a set of data collected to answer statistical questions has a distribution which can be described by its center, spread, and overall shape and recognize that a measure of variation describes how its values vary with a single number.	
M.4.3.3 Summarize and describe distributions. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	
M.4.3.4 Represent and Interpret data. Make a line plot to display a data set including data sets involving fractions. Solve problems involving information presented in line plots.	
M.4.3.5 Investigate chance processes. Develop an understanding of events as certain, impossible, likely, or unlikely to occur. Understand that probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.	
M.4.3.6 Investigate chance processes. Determine the probability of basic events (e.g., in the results of tossing a coin, rolling a die, or drawing cards from a deck of cards, chance of baby being born on a certain day of week, etc.) and express the likelihood of an occurrence as a ratio, fraction, or percent.	
M.5.3 Algebra	**Date**
M.5.3.1 Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	
M.5.3.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	
M.5.3.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
M.5.3.4 Gain familiarity with factors and multiples. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors.	
M.5.3.5 Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	
M.5.3.6 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.	

M.5.3.7 Write and interpret numerical expressions. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	
M.5.3.8 Apply and extend previous understandings of arithmetic to algebraic expressions. Write and evaluate numerical expressions involving whole-number exponents. Understand that exponents are used to represent repeated multiplication.	
M.5.3.9 Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	
M.5.3.10 Apply the properties of operations to generate equivalent expressions.	
M.5.3.11 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	
M.5.3.12 Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	
M.5.3.13 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	
M.5.3.14 Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q, and x are all nonnegative rational numbers.	
M.5.3.15 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	
M.5.3.16 Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real world problem that change in relationship to one another; write an equation to express a quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	

Mathematics Level 4: Student Checklist **Name: _____**

M.1.4 Number Sense and Operations	Date
M.1.4.1 Fluently add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	
M.1.4.2 Compute fluently with multi-digit numbers and find common factors and multiples. Fluently divide multi-digit numbers using the standard algorithm.	
M.1.4.3 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factors.	
M.1.4.4 Apply and extend previous understandings of numbers to the system of rational numbers. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	
M.1.4.5 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., – (– 3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	
M.1.4.6 Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. d. Distinguish comparisons of absolute value from statements about order.	
M.1.4.7 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	
M.1.4.8 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. b. Understand $p + q$ as the number located a distance $\mid q \mid$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + – q$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.	
M.1.4.9 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not 0, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, $–(p/q) = (– p)/ q= p/(q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	
M.1.4.10 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	
M.1.4.11 Solve real-world and mathematical problems involving the four operations with rational numbers.	
M.1.4.12 Know that there are numbers that are not rational, and approximate them by rational numbers. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).	

M.1.4.13 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0.	
M.1.4.14 Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. c. Find a percent of a quantity as a rate per 100, solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	
M.1.4.15 Analyze proportional relationships and use them to solve real-world and mathematical problems. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	
M.1.4.16 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. d. Explain what a point *(x, y)* on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r)* where *r* is the unit rate.	
1.4.17 Use proportional relationships to solve multistep ratio and percent problems.	
M.2.4 Measurement	**Date**
M.2.4.1 Geometric measurement: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. b. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	
M.2.4.2 Measure common three-dimensional shapes (e.g., a room, window, box, etc.) and represent the information as a scale drawing. Interpret and use scale drawings to solve real world and mathematical problems.	
M.2.4.3 Calculate the perimeter and area of basic irregular or composite shapes, i.e., shapes formed by a combination of rectangles and triangles using formulas provided.	
M.3.4 Geometry	**Date**
M.3.4.1 Draw, construct and describe geometrical figures and describe the relationships between them. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	
M.3.4.2 Solve real-world and mathematical problems involving angle, measure, area, surface area, and volume. a. Know the formulas for the area and circumference of a circle and use them to solve problems; given an informal derivation of the relationship between the circumference and area of a circle. b. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. c. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	
M.3.4.3 Understand congruence and similarity using physical models, transparencies, or geometry software. a. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two congruent figures, describe a sequence that exhibits the congruence between them. b. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. c. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	
M.3.4.4 Understand and apply the Pythagorean Theorem to find the distance between two points in a coordinate system and to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	

M.4.4 Data Analysis, Statistics, and Probability	**Date**
M.4.4.1 Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurements. c. Giving quantitative measures of center (median and/or mean) variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distributions and the context in which the data was gathered.	
M.4.4.2 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a change process.	
M.4.4.3 Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Represent sample spaces for compound events using methods such as lists, tables and tree diagrams.	
M.4.4.4 Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. a. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. b. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	
M.4.4.5 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for row or columns to describe possible association between two variables.	
M.4.4.6 Use random sampling to draw inferences about a population. a. Understand that statistics can be used to gain information about a population by examining a sample of the population. Understand that random sampling tends to produce representative samples and support valid inferences. b. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	
M.4.4.7 Draw informal comparative inferences about two populations. a. Informally assess the degree of visual overlap of two numerical data distributions with similar variability, measuring the difference between the centers by expressing it as a multiple of a measure of variability. b. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	
M.5.4 Algebraic Thinking	**Date**
M.5.4.1 Use properties of operations to generate equivalent expressions. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	
M.5.4.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	
M.5.4.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	
M.5.4.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	

Mathematics Level 4: Student Checklist, Page 4

M.5.4.5 Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions.	
M.5.4.6 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √ 2 is irrational.	
M.5.4.7 Use scientific notation. a. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. b. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	
M.5.4.8 Understand the connections between proportional relationships, lines, and linear equations. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	
M.5.4.9 Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	
M.5.4.10 Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. See example.	
M.5.4.11 Define, evaluate, and compare functions. a. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. b. Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.	
M.5.4.12 Use functions to model relationships between quantities. a. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. b. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	

Mathematics Level 1: Instructor Checklist

M.1.1 Number Sense and Operations	**Materials Used - Include specific activity, book, page number, etc.**
M.1.1.1 Understand place value. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following special cases: a. 10 can be thought of as a bundle of ten ones – called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, … eight, or nine ones. The numbers 10, 20, 30, 40, 50, 60, 70, 80 90 refer to one, two three, four, five, six, seven, eight, or nine tens (and 0 ones).	
M.1.1.2 Understand place value. Compare two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	
M.1.1.3 Use place value understanding and the properties of operations to add and subtract. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	
M.1.1.4 Use properties of operations to add and subtract. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range of 10-9 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	
M.2.1 Measurement	**Materials Used - Include specific activity, book, page number, etc.**
M.2.1.1 Measure lengths indirectly and by iterating length units. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.	
M.2.1.2 Measure the length of an object twice, using length units of different lengths for the two measurements and describe how the two measurements relate to the size of the unit chosen.	
M.3.1 Geometry	**Materials Used - Include specific activity, book, page number, etc.**
M.3.1.1 Analyze, compare, create, and compose shapes. Analyze and compare two- and three-dimensional shapes, in different sizes and orientation, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	
M.3.1.2 Reason with shapes and their attributes. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	

Mathematics Level 1: Instructor Checklist, page 2

M.4.1 Data Analysis, Statistics, and Probability	**Materials Used - Include specific activity, book, page number, etc.**
M.4.1.1 Identify and name various simple visual data (graphs, charts, tables) found in authentic publications.	
M.4.1.2 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than another.	
M.5.1 Algebraic Thinking	**Materials Used - Include specific activity, book, page number, etc.**
M.5.1.1 Understand and apply properties of operations and the relationship between addition and subtraction. Apply properties of operations as strategies to add and subtract. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 4 + 6, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*	
M.5.1.2 Understand subtraction as an unknown-addend problem.	
M.5.1.3 Add and subtract with 20. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). Add and subtract within 20, demonstrating fluency for addition and subtraction with 10. Use strategies such as counting on: making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	
M.5.1.4 Work with addition and subtraction. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.	
M.5.1.5 Work with addition and subtraction. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.	
M.5.1.6 Represent and solve problems involving addition and subtraction. Solve word problems that call for addition and subtraction of whole numbers less than or equal to 20. Apply commutative property of addition and associative property of addition to add. Understand subtraction as an unknown-addend problem.	

Mathematics Level 2: Instructor Checklist

M.1.2 Number Sense and Operations	Materials Used - Include specific activity, book, page number, etc.
M.1.2.1 Understand that the three digits of a three-digit number represents amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following special cases: a. 100 can be thought of as a bundle of ten tens – called a "hundred." b. The numbers 100, 200, … 900 refer to one, two, … nine hundreds (and 0 tens and 0 ones).	
M.1.2.2 Count within 1000; skip-count by 5s, 10s, and 100s.	
M.1.2.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	
M.1.2.4 Compare two three-digit numbers based on meanings of hundreds, tens, and ones digits, using >, =, < symbols to record the results of comparisons.	
M.1.2.5 Add up to four two-digit numbers using strategies based on place value and properties of operations.	
M.1.2.6 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, and ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	
M.1.2.7 Use place value understanding and properties of operations to add and subtract. Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.	
M.1.2.8 Use place value understanding and properties of operations to add and subtract. Explain why addition and subtraction strategies work, using place value and the properties of operations.	
M.1.2.9 Use place value understanding and properties of operations to perform multi-digit arithmetic. a. Use place value understanding to round whole numbers to the nearest 10 or 100. b. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction.	
M.1.2.10 Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations	
M.1.2.11 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	
M.1.2.12 Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	
M.1.2.13 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on the number line. b. Recognize and generate simple equivalent fractions. Explain why the fractions are equivalent. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions.	

Mathematics Level 2: Instructor Checklist, Page 2

M.2.2 Measurement	**Materials Used - Include specific activity, book, page number, etc.**
M.2.2.1 Measure and estimate lengths in standard units. Estimate length units using units of inches, feet, centimeters, and meters. Measure to determine how much longer one object is than another, expressing the length difference in terms of standard length unit.	
M.2.2.2 Relate addition and subtraction to length. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1,, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.	
M.2.2.3 Solve problems involving measurement and estimation of intervals of time. Tell and write time to the nearest minute and measure time intervals in minutes.	
M.2.2.4 Solve problems involving measurement and estimation of liquid volumes and masses of objects. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilogram (kg), and liters (l). Add, subtract, multiply or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	
M.2.2.5 Geometric measurement: Understand concepts of area and relate to area of multiplication and addition. Recognize area as an attribute of plan figures and understand concepts of area measurement. a. A square with a side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure, which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. c. Measure areas by counting unit squares (square cm, square m, square ft and improvised units).	
M.2.2.6 Geometric measurement: Relate area to the operations of multiplication and addition. a. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. b. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a x b and a x c. Use area models to represent the distributive property of mathematical reasoning.	
M.2.2.7 Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	
M.3.2 Geometry	**Materials Used - Include specific activity, book, page number, etc.**
M.3.2.1 Reason with shapes and their attributes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	
M.3.2.2 Reason with shapes and their attributes. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of, etc,* and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	
M.3.2.3 Reason with shapes and their attributes. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	
M.3.2.4 Reason with shapes and their attributes. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	

Mathematics Level 2: Instructor Checklist, Page 3

M.4.2 Data Analysis, Statistics, and Probability	**Materials Used - Include specific activity, book, page number, etc.**
M.4.2.1 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories.	
M.4.2.2 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.	
M.4.2.3 Solve one- and two-step problems "how many more" and "how many less" problems using information presented in scaled bar graphs.	
M.5.2 Algebraic Thinking	**Materials Used - Include specific activity, book, page number, etc.**
M.5.2.1 Represent and solve problems involving addition and subtraction. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, wit unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	
M.5.2.2 Represent and solve problems involving multiplication and division. *a.* Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. *b.* Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.	
M.5.2.3 Multiply and divide within 100. a. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. Know from memory all products of two one-digit numbers. b. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	
M.5.2.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	
M.5.2.5 Understand properties of multiplication and the relationship between multiplication and division. Apply properties of operations as strategies to multiply and divide. Note: Students need not use formal terms for these properties.	
M.5.2.6 Understand division as an unknown-factor problem.	
M.5.2.7 Solve problems involving the four operations, and identify and explain patterns in arithmetic. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
M.5.2.8 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations	

Mathematics Level 3: Instructor Checklist

M.1.3 Number Sense and Operations	Materials Used - Include specific activity, book, page number, etc.
M.1.3.1 Generalize place value understanding for multi-digit whole numbers. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right and 1/10 of what it represents in the place to its left.	
M.1.3.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	
M.1.3.3 Use place value understanding to round multi-digit whole numbers to any place.	
M.1.3.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	
M.1.3.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
M.1.3.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
M.1.3.7 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	
M.1.3.8 Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.) b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	
M.1.3.9 Use place value understanding to round decimals to any place.	
M.1.3.10 Perform operations with multi-digit whole numbers and with decimals to hundredths. Fluently multiply multi-digit whole numbers using the standard algorithm.	
M.1.3.11 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	
M.1.3.12 Extend understanding of fraction equivalence and ordering. Explain why a fraction a / b is equivalent to a fraction (n x a) (n x b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	
M.1.3.13 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1 / 2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	
M.1.3.14 Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers. Understand a fraction a / b with a > 1 as a sum of fractions 1 / b. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.	

M.1.3.15 Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	
M.1.3.16 Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	
M.1.3.17 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a* / *b* as a multiple of 1 / *b*. *b.* Understand a multiple of *a* / *b* as a multiple of 1 / *b*, and use this understanding to multiply a fraction by a whole number. *c.* Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.	
M.1.3.18 Understand decimal notation for fractions, and compare decimal fractions. Use decimal notation for fractions with denominators 10 or 100.	
M.1.3.19 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	
M.1.3.20 Use equivalent fractions as strategy to add and subtract fractions. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	
M.1.3.21 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	
M.1.3.22 Apply and extend previous understanding of multiplication and division to multiply and divide fractions. Interpret a fraction as division of the numerator by the denominator ($a / b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	
M.1.3.23 Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a)/(n×b) to the effect of multiplying a/b by 1.	
M.1.3.24 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	
M.1.3.25 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. b. Interpret division of a whole number by a unit fraction, and compute such quotients. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.	

M.2.3 Measurement	**Materials Used - Include specific activity, book, page number, etc.**
M.2.3.1 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems (by using an equation with a symbol for the unknown angle measure).	
M.2.3.2 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	
M.2.3.3 Convert like measurement units within a given measurement system. Convert among different-sized standard measurement units within a given measurements system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world and mathematical problems.	
M.2.3.4 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	
M.2.3.5 Geometric measurement: Understand concepts of angle and measure angles. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the pints where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle” and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. c. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	
M.2.3.6 Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. c. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	
M.3.3 Geometry	**Materials Used - Include specific activity, book, page number, etc.**
M.3.3.1 Draw and identify lines and angles, and classify shapes by properties of their lines and angles. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	
M.3.3.2 Graph points on the coordinate plane to solve real-world and mathematical problems. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	

M.3.3.3 Classify two-dimensional figures into categories based on their properties. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	
M.3.3.4 Solve real world and mathematical problems involving area, surface area, and volume. a. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. b. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. c. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	
M.4.3 Data Analysis, Statistics, and Probability	**Materials Used - Include specific activity, book, page number, etc.**
M.4.3.1 Develop understanding of statistical variability. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	
M.4.3.2 Develop understanding of statistical variability. Understand that a set of data collected to answer statistical questions has a distribution which can be described by its center, spread, and overall shape and recognize that a measure of variation describes how its values vary with a single number.	
M.4.3.3 Summarize and describe distributions. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	
M.4.3.4 Represent and Interpret data. Make a line plot to display a data set including data sets involving fractions. Solve problems involving information presented in line plots.	
M.4.3.5 Investigate chance processes. Develop an understanding of events as certain, impossible, likely, or unlikely to occur. Understand that probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.	
M.4.3.6 Investigate chance processes. Determine the probability of basic events (e.g., in the results of tossing a coin, rolling a die, or drawing cards from a deck of cards, chance of baby being born on a certain day of week, etc.) and express the likelihood of an occurrence as a ratio, fraction, or percent.	
M.5.3 Algebraic Thinking	**Materials Used - Include specific activity, book, page number, etc.**
M.5.3.1 Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	
M.5.3.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	
M.5.3.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
M.5.3.4 Gain familiarity with factors and multiples. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors.	

M.5.3.5 Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	
M.5.3.6 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.	
M.5.3.7 Write and interpret numerical expressions. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	
M.5.3.8 Apply and extend previous understandings of arithmetic to algebraic expressions. Write and evaluate numerical expressions involving whole-number exponents, i.e., $4(4) = 4^2 = 16$ and $2(2)(2)= 2^3 = 8$. Understand that exponents are used to represent repeated multiplication.	
M.5.3.9 Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	
M.5.3.10 Apply the properties of operations to generate equivalent expressions.	
M.5.3.11 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	
M.5.3.12 Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	
M.5.3.13 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	
M.5.3.14 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all nonnegative rational numbers.	
M.5.3.15 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	
M.5.3.16 Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real world problem that change in relationship to one another; write an equation to express a quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	

Mathematics Level 4: Instructor Checklist

M.1.4 Number Sense and Operations	Materials Used - Include specific activity, book, page number, etc.
M.1.4.1 Fluently add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	
M.1.4.2 Compute fluently with multi-digit numbers and find common factors and multiples. Fluently divide multi-digit numbers using the standard algorithm.	
M.1.4.3 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factors.	
M.1.4.4 Apply and extend previous understandings of numbers to the system of rational numbers. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	
M.1.4.5 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., – (– 3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	
M.1.4.6 Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. d. Distinguish comparisons of absolute value from statements about order.	
M.1.4.7 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	
M.1.4.8 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. b. Understand $p + q$ as the number located a distance $\mid q \mid$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + – q$) . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.	
M.1.4.9 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	

M.1.4.9 continued, b. Understand that integers can be divided, provided that the divisor is not 0, and every quotient of integers is a rational number. If *p* and *q* are integers, $-(p/q) = (-p)/q = p/(q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	
M.1.4.10 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	
M.1.4.11 Solve real-world and mathematical problems involving the four operations with rational numbers.	
M.1.4.12 Know that there are numbers that are not rational, and approximate them by rational numbers. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).	
M.1.3.13 Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$.	
M.1.4.14 Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. c. Find a percent of a quantity as a rate per 100, solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	
M.1.4.15 Analyze proportional relationships and use them to solve real-world and mathematical problems. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	
M.1.4.16 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. d. Explain what a point *(x, y)* on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r)* where *r* is the unit rate.	
M.1.4.17 Use proportional relationships to solve multistep ratio and percent problems.	
M.2.4 Measurement	**Materials Used - Include specific activity, book, page number, etc.**
M.2.4.1 Geometric measurement: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	
M.2.4.2 Measure common three-dimensional shapes and represent the information as a scale drawing. Interpret and use scale drawings to solve real-world and mathematical problems.	
M.2.4.3 Calculate the perimeter and area of basic irregular or composite shapes, i.e., shapes formed by a combination of rectangles and triangles using formulas provided.	

M.3.4 Geometry	**Materials Used - Include specific activity, book, page number, etc.**
M.3.4.1 Draw, construct and describe geometrical figures and describe the relationships between them. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	
M.3.4.2 Solve real-world and mathematical problems involving angle, measure, area, surface area, and volume. a. Know the formulas for the area and circumference of a circle and use them to solve problems; given an informal derivation of the relationship between the circumference and area of a circle. b. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. c. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	
M.3.4.3 Understand congruence and similarity using physical models, transparencies, or geometry software. a. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two congruent figures, describe a sequence that exhibits the congruence between them. b. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. c. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	
M.3.4.4 Understand and apply the Pythagorean Theorem to find the distance between two points in a coordinate system and to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	
M.4.4 Data Analysis, Statistics, and Probability	**Materials Used - Include specific activity, book, page number, etc.**
M.4.4.1 Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurements. c. Giving quantitative measures of center variability, as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distributions and the context in which the data was gathered.	
M.4.4.2 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a change process.	
M.4.4.3 Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Represent sample spaces for compound events using methods such as lists, tables and tree diagrams.	

M.4.4.4 Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. a. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. b. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	
M.4.4.5 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for row or columns to describe possible association between two variables.	
M.4.4.6 Use random sampling to draw inferences about a population. a. Understand that statistics can be used to gain information about a population by examining a sample of the population. Understand that random sampling tends to produce representative samples and support valid inferences. b. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	
M.4.4.7 Draw informal comparative inferences about two populations. a. Informally assess the degree of visual overlap of two numerical data distributions with similar variability, measuring the difference between the centers by expressing it as a multiple of a measure of variability. b. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	
M.5.4 Algebraic Thinking	**Materials Used - Include specific activity, book, page number, etc.**
M.5.4.1 Use properties of operations to generate equivalent expressions. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	
M.5.4.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	
M.5.4.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	
M.5.4.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p (x + q) r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	
M.5.4.5 Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions.	
M.5.4.6 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √ 2 is irrational.	

M.5.4.7 Use scientific notation. a. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. b. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	
M.5.4.8 Understand the connections between proportional relationships, lines, and linear equations. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	
M.5.4.9 Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	
M.5.4.10 Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. See example.	
M.5.4.11 Define, evaluate, and compare functions. a. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. b. Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.	
M.5.4.12 Use functions to model relationships between quantities. a. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. b. Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	

Technology/Computer Literacy Benchmarks, Performance Indicators and Sample Activities

Standard 1, Levels 1-4, Grade Levels 0.0 – 8.9

T.1 Technology & Society: The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.			
Level	**Benchmark**	**Performance Indicator**	**Sample Activities**
T.1.1.1	Identify the computer as a machine that helps people communicate, work, and play.	Identify 3 ways that computers are used to communicate from 1 person to another or 1 group of people to another; 3 ways a person might use a computer to perform a job, and 3 ways computers are used for personal entertainment.	Display pictures (from magazines or newspapers) to get students to think about how computers are used in everyday life.
T.1.1.2	Recognize, discuss, and model correct use of common computer terms.	The student should be able to point out and briefly explain the function of these terms: CPU, monitor, keyboard, mouse, disk drive, hardware, software, CD, DVD, hard drive, flash drive, printer.	Have students make a glossary of computer terms; this can be done using a database such as Microsoft Works (each student can add 1 or more records) or with a word processor (each student can contribute to a common document). Print the final product for each student to have as a reference of computer terms.
T.1.1.3	Identify and discuss common features and functions of computer software and devices.	The student should be able to perform the following tasks: open an existing file, create a new document, save, print, and explain the difference between input and output.	Have students add these terms to the glossary mentioned in standard T.1.1.2. Have students word process a paragraph about themselves. Have them give their file a name, save, print, close the file, rename it, make a backup copy, open the file again. After performing these tasks, have students identify which processes involved input and which involved output. Note: This paragraph can be a good beginning of the year activity for students to get to know each other and the instructor if students share their paragraphs. The paragraphs can be displayed on a bulletin board; later when digital camera skills are covered, students can add a photo of themselves to their paragraphs.
T.1.1.4	Identify and discuss correct and responsible use and care of technology resources.	Students should be able to explain and model how to care for flash drives, including how to safely eject them from the computer; clean a monitor screen; turn a computer off correctly; and model keeping food and drinks away from computer work areas.	Make a list of actions a person can take to care for technology resources. Beside each action, list consequences that might occur if the resource is mistreated.
T.1.1.5	Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and society in general.	Students should know the function of the following devices: computers, cell phones, digital cameras, bar code scanners, handheld devices, optical storage devices, and GPS systems.	Have students make a chart (either on a word processor, paper, or blackboard) with 2 sections: 1950 to 1980 and Present Day. List technology common in each time period, attempting to compare like technologies (i.e., a map versus a GPS). Next, add a third column labeled "Impact on Society" and list how present day technology has been influenced by each of the items.

T.1.1.6	Investigate computer/technology-related careers and occupations from the past, present, and future.	Students should be able to identify how careers have changed over the past 100 years due to technology.	The instructor can show 3 segments from videos (i.e., tv shows) of 3 time periods (past, present, and future) and have students identify technology used and how that technology has evolved. For example: in a video from the past, the teacher could show a few minutes from the Andy Griffith Show when phones were attached to a wall and an operator dialed the phone number. If a futuristic video is not available, have students brainstorm what they think could make devices function better. Have students list careers that are now obsolete due to technological changes, i.e., telephone operators.
T.1.1.7	Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.	The teacher can choose a career common to the local community and have students list either on a chart, the board, or paper technology skills needed for that job.	Have each student identify a career he/she would like to have and investigate (either through the Internet or personal interview) what technology skills are needed for that career. Allow students to work with a partner if there are common career goals in the class.
T.1.2.1	Recognize and discuss the rights of ownership of computer-created and online work.	Students should understand what plagiarism is, why it is wrong, and how it affects an author.	Give students a scenario where they are a writer who has poems posted online; ask them how they would feel if someone copied their poems and claimed that he/she wrote them.
T.1.2.2	Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.	Students should be able to • give examples and effects of Internet and cell phone bullying, • understand how to be safe regarding personal information and interactions online, • recognize if a website is valid and/or secure, • guard against computer crime such as money scams, • know and model email etiquette, including not spamming or sending inappropriate email, and • recognize Internet chain mail.	Have students read articles about how bullying affects a person (e.g., depression, suicide, anger). Show students "mock" emails and have students decide if they follow Internet etiquette guidelines.
T.1.2.3	Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.	Students should know the types of software licenses (public domain, shareware, and copyright).	Have students correctly cite online sources with a project they complete (i.e., a PowerPoint or web page); show examples of MLA and APA citations.
T.1.2.4	Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, and language), especially as related to use during class and for class projects and assignments.	Students should know how to download online music legally and recognize illegal methods to download music. They should also know the possible consequences of downloading illegal music.	When creating projects, direct students to sites that are public domain (i.e., freeplaymusic.com).

T.1.3.1	Recognize, discuss, and use terms and concepts related to networks (e.g., stand alone, network, file server, LANs, WANs, network resources) and protection of computers, networks, and information (virus protection, network security, passwords, firewalls, privacy laws).	Students should know how to create a password that has good or high security. They should also understand the ethics involved with passwords and the necessity of changing passwords frequently.	Have students draw a diagram of a network, including a file server. Have them explain how software is distributed and how a site license works.
T.1.3.2	Investigate, recognize, and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.	Students should be able to: • know the warning signs that a computer is infected with a virus; • explain effects a virus might have on a computer; • explain reasons a person may create a virus; • understand how to prevent getting a virus; and • know how phishing, adware, key loggers, and spyware works.	Have students discuss the different kinds of antivirus software available and what they would choose for their own computer.
T.1.3.3	Identify and discuss the benefits of non-networked and networked computers.	Students should be able to give examples of settings where a network would be desirable and where a non-networked setup would work better.	Have students brainstorm the benefits of networked computers versus non-networked computers and vice versa (i.e., your computer at work may be connected to email and the Internet whereas your computer at home may not be connected to anything).
T.1.4.1	Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle between two windows on the desktop, and copy and paste data between two windows on the desktop).	Students should know the parts of a window (title bar, close box, minimize button, maximize button, resize area) and when to use them.	Provide students with 2 word processed documents (2 poems) then have them cut and paste and copy and paste from 1 document to another.
T.1.4.2	Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.	Students should be able to troubleshoot as problems arise in class. They should know what to do if a computer locks up.	Present students with scenarios where there is a hypothetical problem and have students give suggestions of the origin of the problem (e.g., light off on printer may mean that it is not plugged in or the power button is off).

T.2 Databases: The student will demonstrate an understanding of databases and ability to create databases.			
Level	**Benchmark**	**Performance Indicator**	**Sample Activities**
T.2.1.1	Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.	Give examples of print and non-print databases used in schools, business, science, etc.	(1) Ask students to consider what might happen if a library had no catalog system. (2) Ask students to consider a common database that they use (cookbook, phone book) and brainstorm reasons why it might be better in print form then why it might be better in electronic form.
T.2.1.2	Identify and discuss how and why databases are used in an information-intensive society [e.g., in education, government, business, community (grocery, pharmacy, and home)].	Contrast the advantages/disadvantages of both print and non-print databases.	As a whole class activity, have students list places in the community they commonly go then tell how databases are used or might be used at that place. Give an example to begin.
T.2.1.3	Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.	Students should be able to identify at least six database terms and/or concepts by writing definitions or completing a matching type activity.	Using index cards, have students create a database about an interest of theirs, i.e., a movie collection, the cars they drive, music they collect, books read, etc. Each student will fill out 1 record/index card. This can be done collectively as a class, thus building a large database students can use as a reference. Solicit ideas on what fields will be needed. Discuss definitions of fields, records, and files. Have students choose a field to manually sort the database by then choose a criterion and manually filter the database.
T.2.2.1	Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).	Students should understand the difference between a search and a filter, and be able to show all records after performing a search or filter.	Give students a prepared electronic database (e.g., dinosaurs, waterfalls, U.S. presidents, etc.) and have them do a search then a filter.
T.2.2.2	Use prepared databases to sort alphabetically/numerically in ascending/descending order.	Students should know how to sort in both ascending and descending order and understand when to use ascending and descending orders.	After performing the search in standard T.2.2.1, have students sort the data to alphabetize or put in numerical order and then do the same for the filter.
T.2.2.3	Modify prepared databases to enter/edit additional information and cite the source.	Students should be able to add records and fields.	Have students add a record to the database used in standard T.2.2.1 OR have students add a field to an existing record. Have students add another field to cite the source of their information.
T.2.2.4	Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, web pages).	Students should be able to do a sort, search, and filter and copy and paste the results into another document such as a word document.	After adding a record as started in standard T.2.2.1, sort the database. Insert the database into a word processed document.
T.2.3.1	Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.	Students should be able to create a database from scratch.	Have students create an address book of their family and friends.
T.2.3.2	Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.	Students should be able to use instructor-given sort and search functions to organize, analyze, interpret, and evaluate findings in an instructor provided database.	Have students use a prepared database to answer questions given by the instructor that use the sort and search functions to organize, analyze, interpret and evaluate their findings.

T.2.4.1	Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.	Students should be able to search for data and use filters to narrow records.	Have students answer *Who Am I?* questions by giving them 2 or 3 questions that require them to search and/or filter. For example, if they are creating a musician database, you could ask, "I am famous for rock and roll. I am deceased. I was born in South Carolina."
T.2.4.2	Plan and develop a simple database to enter, edit, collect, organize, and display data.	Students should be able to plan and develop a simple database.	Have students create an electronic database from the print database completed in standard T.2.2.4. Sort the database by various fields and draw conclusions from the sort.
T.2.4.3	Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.	Students should be able to explain the strategies they used to plan and develop a database.	Have students create a simple database then share with the class how they created it, using terminology learned in class.
T.2.4.4	Plan and develop database reports to organize data, create reports, and present findings, citing sources.	Students should be able to explain how they did a search and why they got the results that they did.	After answering the *Who Am I*? questions described in T.2.4.1, have students show their search or filter to the class while explaining how they arrived at their answer(s).
T.2.4.5	Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.	Students should be able to save a database and copy and paste all or parts of it into a word-processed or desktop publishing document. They should be able to insert a photograph from online and cite it.	Copy and paste the electronic database started in standard T.2.2.4 into a word-processed document. Students can make a "wanted" poster with their *Who Am I?* questions listed. Have students insert a photo from the Internet onto the poster and cite the source.

T.3 Spreadsheets: The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.			
Level	**Benchmark**	**Performance Indicator**	**Sample Activities**
T.3.1.1	Identify spreadsheets as a tool for organizing information.	Students should be able to give advantages of using an electronic spreadsheet.	Have students brainstorm ways that using a spreadsheet is more efficient than using a calculator or paper and pencil.
T.3.1.2	Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, mathematics, communications, transportation, science).	Students should be able to identify common uses of spreadsheets in today's world.	Give students examples of places where spreadsheets are used (e.g., bank or hospital) and have them discuss how a spreadsheet might be used at that location.
T.3.1.3	Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, display, cell, column, row, values, labels, chart, formula, sort, classify, bar graphs, line graphs, pie charts).	Students should be able to identify the parts of a spreadsheet (columns, rows, cells, formula bar, charts). Students should be able to recognize the difference among bar graphs, line graphs, and pie charts.	Have students open a prepared spreadsheet and identify the rows, columns, cells, and formula bar. Perform a sort to alphabetize or numerically arrange a column.
T.3.2.1	Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.	Students should be able to enter data and predict and understand how the change will affect other data in the spreadsheet.	Using the spreadsheet in T.3.1.3, predict what would happen if a value in a numerical cell were increased or decreased then enter the value to check predictions. Identify which cells changed and why.
T.3.2.2	Use spreadsheet software to enter, display, and identify types (text and numeric) of data.	Students should be able to identify, enter, and display text and numbers into a spreadsheet.	Have students identify text and numbers in a prepared spreadsheet then enter their own text and numbers and discuss any changes.
T.3.2.3	Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.	Students should understand why a chart is valid or not (e.g., it should have x and y axes labeled).	With the spreadsheet used in T.3.1.3, make an appropriate chart.
T.3.3.1	Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.	Students should know how to write formulas to add, subtract, multiply, divide, sum, and average values. They should know how to copy formulas down a column or across a row.	Using the spreadsheet in T.3.1.3, have students add a row or column and change formulas as needed then make a chart from the revised data.
T.3.3.2	Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.	Students should be able to calculate median, range, and mode for a simple set of instructor- provided data.	Show students a spreadsheet (e.g., baseball batting averages) and have them calculate the median, range, and mode and explain the differences among the three values.
T.3.4.1	Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.	Students should be able to create a simple spreadsheet, add formulas, and format cells for currency or numbers.	Give students (can use groups) M&Ms candy and have them count the number of M&Ms they have for each color. Make a spreadsheet of their data. From the data, predict the percentages of each color. Are some colors more common than others? Use the F11 key on the keyboard to make a bar chart, either of all the data or a particular color.
T.3.4.2	Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., multimedia, word processing, web pages), citing sources.	Students should be able to copy and paste part or all of a spreadsheet or chart into another document.	Using the chart made in standard T.3.4.1, copy and paste it into an imaginary letter to the president of the M&M company.

T.4 Desktop Publishing: The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.			
Level	**Benchmark**	**Performance Indicator**	**Sample Activities**
T.4.1.1	Identify basic word processing terms.	Students should know the meaning of file, cursor, menu bar, title bar, close box, minimize, maximize, and resize area.	Open a blank word document. Show students parts of the word processing window, menus, etc.
T.4.1.2	Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert, enter/return, backspace, delete) on the keyboard.	Students should understand how backspace and delete keys differ, be able to capitalize words, enter numbers into a document, and identify the numeric keypad.	Have students enter their name, address, and telephone number on separate lines using a word processor.
T.4.1.3	Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.	Students should be able to enter words into a word processor and use the enter key and arrow keys to go from one line to another. They should know how to enter numbers.	Adding to the document started in standard T.4.1.2, have students type a paragraph about themselves, perhaps telling where they are from, what hobbies they have, likes, and dislikes, etc.
T.4.1.4	With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.	Students should be able to identify and use the menu/tool functions in word processing applications to create a simple document.	Have students type a sentence that includes their name and favorite hobby. From the formatting toolbar, have them change the font type, font color, font size, choose a word to boldface and italicize, underline a word, add clip art, do a spell check, save, print, and make a back-up copy.
T.4.1.5	Demonstrate correct finger placement for home row keys.	Students should be able to locate and demonstrate correct placement of fingers on the "home keys": asdf jkl;".	Have students type a few lines that contain only home row keys (won't be complete words). Example: asdfjkl; then type it backwards.
T.4.2.1	Recognize and explain the advantages and disadvantages of using word processing to create documents.	Students should be able to discuss with a group the advantages and disadvantages of using word-processing.	Show students several examples of non-print word -processed documents, i.e., newspaper article, magazine article, book. Have them discuss ways that these non-print documents can be created electronically.
T.4.2.2	Identify, discuss, and use word processing as a tool to open, edit, print, and save documents.	Students should be able to open an existing document, make changes, undo changes, cut and paste, copy and paste, save changes, print, and make a backup copy.	Have students open a word-processed document that is easily recognized and you have put out of order (e.g., a children's poem or song such as *Row, Row, Row Your Boat*). Have students cut and paste lines into the correct order then have them copy and paste the entire poem or song so that they have 2 copies. Save, make a backup copy, and print.
T.4.2.3	Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, and spell check).	Be able to identify and use the desktop, drop down menus, and tool bars. Know how to change margins and line spacing and perform a spell check.	From the song or poem in standard T.4.2.2, add a title, double space the body of the document, decrease the top, bottom, and side margins, and check the document for correct spelling.
T.4.2.4	Use the formatting toolbar to format and change the appearance of word processing documents.	Be able to format and change the appearance of a document.	From the song or poem in standard T.4.2.2, enlarge the font of the title, boldface, center, and underline the title, change the font of the entire document, and choose a line to italicize.

T.4.2.5	Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories.	Be able to type sentences into a document, use the "undo" button from the Edit menu, and print a document.	Add On Story Activity: Give students a "story starter" to type as the first sentence in a story that they write. Give them a few minutes to type on the story then have them stand up and go to another computer and add on to that story. Students rotate several times before going back to finish their story. Print and display stories if desired.
T.4.3.1	Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.	Understand how varying columns and graphics change the look of a document.	Show students examples of magazine articles, advertisements, and newspaper articles and have them discuss how the layout and choice of graphics influences the viewer.
T.4.3.2	Recognize and use menu and tool bar features to edit and make corrections to documents.	Be able to do a print preview, change the orientation through Page Setup, insert a header, spell check, use the thesaurus, add a clip art picture, and/or resize the picture.	From the Add On Story started in standard T.4.2.5, add a clip art picture, change the orientation to landscape, insert a header with student's name, do a spell check, and change a word using the thesaurus for ideas.
T.4.3.3	Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.	Be able to copy and paste from 1 document to another.	From the database made in standard T.2.4.2, copy and paste part or the entire database into a word document.
T.4.3.4	Identify, discuss, and use WP/DTP menu and tool bar terms and concepts (e.g., import, portrait, landscape, copy and paste between two documents, clipboard) to describe documents.	Students should be able to explain the use/meaning of these terms.	From the word document made in standard T.4.1.2, have students put the document in landscape orientation and explain the process of copying and pasting from the spreadsheet to the word document.
T.4.3.5	Select and use WP/DTP menu and tool bar features to revise and change existing documents.	Students should be able to enhance the layout of a document.	Give students a word-processed file that is typed in a small, plain font. The document can be a poem they will recognize or lyrics to a popular song to edit. If possible, use a desktop publishing program such as Microsoft Publisher. Have students enhance the layout by changing the font, double spacing, adding a title, etc.
T.4.4.1	Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions (e.g., minimize document, resize document, toggle between two open documents on the desktop, columns, tables, headers/footers, and using multiple files and/or applications) to develop (e.g., design, format, layout), edit/revise, and publish documents for a specific audience and purpose.	Have students create a document and explain some of the features and functions they used to create it.	Using a desktop publishing program such as Microsoft Publisher, have students create a brochure or newsletter based on a project they are doing. An example might be a newsletter written from the point of view of a character in a book.
T.4.4.2	Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.	Students should be able to list the advantages and disadvantages of using paper and pen versus a word processor or desktop publishing program.	Have students contrast the process of doing their newsletter or brochure in standard T.4.4.1 using paper and pen versus desktop publishing and desktop publishing versus word processing. Have them identify the target audience for their newsletter or brochure.
T.4.4.3	Demonstrate appropriate use of copyrighted materials in word processing documents.	Students should be able to cite sources of copyrighted materials.	With the newsletter or brochure made in standard T.4.4.1, have students cite sources (information, images, etc.).

T.4.4.4	Use instructor-prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.	Students should be able to evaluate websites for design aspects such as ease of navigation, layout, graphics, etc.	Provide students with a rubric to evaluate various websites.
T.4.4.5	Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.	Students should practice proper keyboarding techniques.	Have students keep a journal to practice keyboarding skills. You can have them turn it in or keep for personal reference. If students don't know how to begin, give them a question to start with such as, "If you could go on any trip for free, where would you go?" or "If you could trade places with anyone, who would you trade with?" or "What was the best day of your life?" Advanced students might even want to start an online personal blog.

Technology/Computer Literacy Benchmarks, Performance Indicators and Sample Activities

Standard 5, Levels 1-4, Grade Levels 0.0 – 8.9

T.5 Multimedia: The student will demonstrate an understanding of multimedia and the ability to create multimedia presentations.			
Level	**Benchmark**	**Performance Indicator**	**Sample Activities**
T.5.1.1	Identify and discuss components of multimedia.	Students should be able to identify text, audio, still images, animation, color, video, sound.	Show students an advertisement from a printed medium such as a magazine or newspaper. Point out the components in the ad such as text, color, photos, clip art. Show students a TV or Internet commercial advertising the same product and compare/contrast print media with multimedia.
T.5.1.2	Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.	Students should be able to insert text, clip art, and photos into multimedia software.	Have students come up with an idea for an invention and then create an advertisement. For example, they might create a boat that can also function as transportation on land. Have them identify their target audience and point of view. Have students use a program such as Paint to illustrate their products then insert their drawings into multimedia software such as PowerPoint, Hypermedia, or Photo Story.
T.5.1.3	Recognize and explain the advantages and disadvantages of using multimedia to develop products.	Students should realize that both print and non-print advertising are valuable and effective, depending on the product.	With the 2 forms of advertising (print and multimedia) viewed in standard T.5.1.1, have students identify the advantages and disadvantages to both forms of advertising.
T.5.2.1	Identify, discuss, and use common multimedia terms and concepts.	Students should know multimedia terms such as slide/card, link/button, text box, navigation buttons, transition, storyboard, sequential, nonlinear/branching, audio clips, video clips, images, links/hyperlinks.	As students create their advertisement in standard T.5.1.2, check for understanding of multimedia terms. Discuss if their product is more effective in a sequential or nonlinear format.
T.5.2.2	Identify and discuss issues (e.g., personal information, images, content, language, and, appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.	Students should realize that each component used in multimedia should have a purpose and/or goal.	With their advertisement started in standard T.5.1.2, ask students to justify their choices of images, sounds, persuasive language, etc. What do they hope to accomplish with each component?
T.5.2.3	Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.	Students should be able to insert, move, and resize text boxes and image frames (both clip art and photos).	Using a document created without graphics, have students add text boxes, clip art, and photos.
T.5.2.4	Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, and websites) to entertain, sell, and influence ideas and opinions.	Students should understand how media can be biased and they should know how to identify point of view and target audience. They should also understand how multimedia can be used to persuade an audience.	Show a 30 second commercial to students (can be from TV or the Internet). Have students list visuals used to portray a message. Show the commercial to students again but have them close their eyes. Have students list ways the creators used audio to portray a message. From whose point of view is the commercial told? Who is the target audience?

T.5.3.1	Identify, discuss, and cite various types of resources.	Students should understand what constitutes plagiarism. They should be able to cite resources such as still images, videos, articles, and music.	Have students make a section (e.g., a slide) in their multimedia advertisement citing any music, images, videos, or information they used.
T.5.3.2	Modify an existing multimedia story to include student narration.	Students should be able to insert a voiceover into a multimedia product.	Have students narrate their advertisement for the product they created. Have them first make a script then target ways they can use their voice and sound effects to "sell" their product.
T.5.3.3	Use storyboards, menus, and branching to modify or create non-linear products, citing sources.	Students should appreciate the planning necessary when creating a multimedia product.	Have students write a storyboard for a digital story that they will create with multimedia software. The storyboard can be done using index cards, a word processor, or pencil and paper. The "story" does not have to be a traditional story; it might be a belief, dream, or idea that they want to digitally share.
T.5.4.1	Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.	Students should be able to compare and contrast methods that use multimedia and methods that don't use multimedia.	Using software such as Photo Story, iMovie, or Movie Maker, have students use the storyboard they created in standard T.5.3.3 to make a digital story. Have students brainstorm non-multimedia methods to create the story; discuss advantages and disadvantages of each method.
T.5.4.2	Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.	Students should be able to brainstorm several target audiences and discuss possible effects that modifying a product might have on an audience and then choose an audience and modify a document for that audience.	Have students share their digital stories with classmates, ideally using a projector. Choose a different audience (e.g., city council or elementary school children) and discuss how you might adapt your project.
T.5.4.3	Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.	Students should be able to collect information and create a chart to display findings. Students should be able to correctly cite resources used.	With their digital story, have students correctly cite their resources (information, images, sounds, videos, etc.). Students might also survey classmates about a topic interesting to the group (e.g., favorite genre of music), insert data into a spreadsheet, make a chart from the data, and then import the chart into a multimedia product.
T.5.4.4	Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).	Students should be able to discern if a multimedia product is of educational value and follows conventions of citing sources, targeting audiences, etc.	Give rubrics to students to review or grade digital photo stories presented by their classmates (standard T.5.4.2).

Standard 6. Internet & Telecommunications: The student will demonstrate an ability to utilize Internet and other telecommunications resources.			
Level	**Benchmark**	**Performance Indicator**	**Sample Activities**
T.6.1.1	Identify and discuss the Internet as a source of information at school and home.	Students should understand the large variety of information available on the Internet.	Have students list ways to get information other than the Internet. Next, have them list everyday uses of the Internet (e.g., libraries, email, commerce, etc.)
T.6.1.2	Discuss the origin of the Internet.	Students should have a general appreciation for the genesis of the Internet, reasons it was created, and how it has developed.	Have students use the Internet to discover who started the Internet. Have them make a timeline of major advances and changes in the Internet (e.g., when the World Wide Web began).
T.6.1.3	Explore Internet resources and information and discuss the variety and types of information found.	Students should realize that there are different types of web pages that give different types of information (e.g., commercial versus government websites).	Have students examine and discuss 2 or more different types of websites such as a shopping site and a library or government site.
T.6.1.4	Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.	Students should realize that just because information is on a web page, it is not necessarily accurate and reliable.	Have students look at examples of web pages where information is reliable and other web pages where information is unreliable. Make a chart to pinpoint characteristics of reliable and unreliable web pages.
T.6.2.1	Identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, World Wide Web, digital information, URL, keyword, search engine, navigation, resources, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.	Students should be able to enter a web page address and go to the web page for that address, understand how links work, and search for information using a search engine. They should be able to make a bookmark or favorite of that web page.	Give students a list of the terms listed in this standard. Play the game, *What Am I?,* where students say 3 sentences in first person to describe their term without using the term itself, then ask their classmates, *What Am I?*
T.6.2.2	Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.	Students should realize that copying and pasting or text, images, etc. from the Internet without citing the source is plagiarism.	Choose a variety of websites for students to examine and determine who the author is and discuss how they might cite resources from these pages.
T.6.2.3	Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).	Students should appreciate the large variety of ways to use the Internet to collaborate with others.	Have students list ways of communicating with others, i.e., telephone, postal service, etc. and compare/contrast with online methods of communication, i.e., email, instant messaging, etc.
T.6.2.4	Use Internet resources to locate information, then discuss and compare findings for usefulness.	Students should be able to discern among online resources.	In groups, assign students a search engine and have them look up a topic the class decides on (e.g., baseball or movies). Compare results from various search engines.
T.6.2.5	Cite sources of information (print and non-print) for a project.	Students should be able to make a bibliography for both print and non-print sources.	Have students make a bibliography from information gathered in standard T.6.2.4.

T.6.3.1	Plan, discuss, and use search strategies with two or more criteria to find information online.	Students should be able to employ a Boolean search.	Have students use the advanced search to find more information for standard T.6.2.4 and then compare/contrast using simple versus advanced searches.
T.6.3.2	Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.	Compare the advantages and disadvantages of various online collaborative tools.	Have students, in pairs or small groups, enter a page in a wiki such as Wetpaint to share information about a topic that they choose in standard T.6.4.1.
T.6.3.3	Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.	Students should be able to adjust presentations according to their audience. They should be able to correctly cite online resources.	Have students present their wiki page from standard T.6.3.2. Have them cite their information at the bottom of the wiki page.
T.6.3.4	Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communication.	Students should understand the advantages and disadvantages of various types of online communications.	If possible, have students Skype another group of students. Choose a topic to discuss and have them prepare questions to ask the other group. This activity could easily be integrated with other subjects. Compare and contrast email and web conferencing.
T.6.4.1	Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks (e.g., password, firewalls, Spam, security, Fair Use, AUP/IUP's, IP address, Intranet, private networks, discussion forum, threaded discussion, LANS, WANs, netiquette, child predators, scammers, hackers).	Students should be able to list ways to use the Internet safely (e.g., don't give out personal information to unknown sources, etc.).	Divide topics into areas (e.g., personal safety or Internet etiquette) and have students choose a topic in pairs or groups (groups may already have been chosen from standard T.6.3.2). Have students create an infomercial using a product (e.g., newsletter, video, brochure, PowerPoint) to teach their classmates how to use the Internet safely.
T.6.4.2	Select and justify use of appropriate collaborative tools (e.g., surveys, email, discussion forums, web pages, wikis, online videoconferencing, documents, etc.) to survey, collect, share, present, and communicate information for the intended audience and purpose.	Students should be able to choose the most appropriate collaborative tool to present information to the intended audience.	Using the infomercial from T.6.4.1, have students set up a discussion forum to get feedback on their product.
T.6.4.3	Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.	Students should understand that information should be sought from a variety of resources to produce an accurate and persuasive product.	When students create their infomercial in standard T.6.4.1, require them to have a variety of types of resources (primary sources, secondary sources, commercial sites, non-profit sites, government sites, encyclopedias, forums, discussion boards, etc.).
T.6.4.4	Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.	Students should be able to evaluate if an Internet resource or product is correct and reliable. Students should realize that webmasters have target audiences.	With the infomercials created in standard T.6.4.1 or with the wiki pages created in standard T.6.3.2, have students use a prepared rubric to evaluate each other's work.

Technology/Computer Literacy Self-Assessment

Please rate yourself on each of the following. Check only one box in each row.

Standard 1. The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.					
Benchmark		**Don't know**	**Know a little**	**Know well**	**Can teach**
T.1.1.1	Identify the computer as a machine that helps people communicate, work, and play.				
T.1.1.2	Recognize, discuss, and model correct use of common computer terms.				
T.1.1.3	Identify and discuss common features and functions of computer software and devices.				
T.1.1.4	Identify and discuss correct and responsible use and care of technology resources.				
T.1.1.5	Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and in society in general.				
T.1.1.6	Investigate computer/technology-related careers and occupations from the past, present, and future.				
T.1.1.7	Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.				
T.1.2.1	Recognize and discuss the rights of ownership of computer-created and online work.				
T.1.2.2	Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.				
T.1.2.3	Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.				
T.1.2.4	Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, language), especially as related to use during class and for class projects and assignments.				
T.1.3.1	Recognize, discuss, and use terms and concepts related to networks (e.g., stand alone, network, file server, LANs, WANs, network resources) and protection of computers, networks, and information (virus protection, network security, passwords, firewalls, privacy laws).				
T.1.3.2	Investigate, recognize and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.				
T.1.3.3	Identify and discuss the benefits of non-networked and networked computers.				
T.1.4.1	Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle or copy and paste data between two windows on the desktop).				
T.1.4.2	Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.				

Standard 2. The student will demonstrate an understanding of databases and ability to create databases.					
Benchmark		**Don't know**	**Know a little**	**Know well**	**Can teach**
T.2.1.1	Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.				
T.2.1.2	Identify and discuss how and why databases are used in an information-intensive society [e.g., in education, government, business, community (grocery, pharmacy) and home].				
T.2.1.3	Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.				
T.2.2.1	Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).				
T.2.2.2	Use prepared databases to sort alphabetically/numerically in ascending/descending order.				
T.2.2.3	Modify prepared databases to enter/edit additional information and cite the source.				
T.2.2.4	Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, web pages).				
T.2.3.1	Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.				
T.2.3.2	Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.				
T.2.4.1	Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.				
T.2.4.2	Plan and develop a simple database to enter, edit, collect, organize, and display data.				
T.2.4.3	Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.				
T.2.4.4	Plan and develop database reports to organize data, create reports, and present findings, citing sources.				
T.2.4.5	Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.				

Standard 3. The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.					
Benchmark		**Don't know**	**Know a little**	**Know well**	**Can teach**
T.3.1.1	Identify spreadsheets as a tool for organizing information.				
T.3.1.2	Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, communications, transportation, mathematics, science).				
T.3.1.3	Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, display, cell, column, row, values, labels, chart, formula, sort, classify, bar graphs, line graphs, pie charts).				
T.3.2.1	Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.				

T.3.2.2	Use spreadsheet software to enter, display, and identify types (text and numeric) of data.				
T.3.2.3	Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.				
T.3.3.1	Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.				
T.3.3.2	Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.				
T.3.4.1	Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.				
T.3.4.2	Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., word processing, multimedia, web pages), citing sources.				

Standard 4. The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.

Benchmark		Don't know	Know a little	Know well	Can teach
T.4.1.1	Identify basic word processing terms.				
T.4.1.2	Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert enter/return, backspace, delete) on the keyboard.				
T.4.1.3	Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.				
T.4.1.4	With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.				
T.4.1.5	Demonstrate correct finger placement for home row keys.				
T.4.2.1	Recognize and explain the advantages and disadvantages of using word processing to create documents.				
T.4.2.2	Identify, discuss, & use word processing as a tool to open, edit, print, & save.				
T.4.2.3	Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, spell check).				
T.4.2.4	Use the formatting toolbar to format and change the appearance of word processing documents.				
T.4.2.5	Use word processing as a tool to write, edit, & publish sentences, paragraphs, & stories.				
T.4.3.1	Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.				
T.4.3.2	Recognize & use menu & tool bar features to edit & make corrections to documents.				
T.4.3.3	Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.				
T.4.3.4	Identify, discuss, and use WP/DTP menu and tool bar terms and concepts (e.g., import, portrait, landscape, copy and paste between two documents, clipboard) to describe documents.				
T.4.3.5	Select & use WP/DTP menu & tool bar features to revise & change existing documents.				
T.4.4.1	Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions to develop, edit/revise, & publish documents for a specific audience & purpose.				

T.4.4.2	Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.				
T.4.4.3	Demonstrate appropriate use of copyrighted materials in word documents.				
T.4.4.4	Use instructor-prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.				
T.4.4.5	Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.				

Standard 5. The student will demonstrate an understanding of multimedia and ability to create multimedia presentations.

Benchmark		Don't know	Know a little	Know well	Can teach
T.5.1.1	Identify and discuss components of multimedia.				
T.5.1.2	Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.				
T.5.1.3	Recognize and explain the advantages and disadvantages of using multimedia to develop products.				
T.5.2.1	Identify, discuss, and use common multimedia terms and concepts.				
T.5.2.2	Identify and discuss issues (e.g., personal information, images, content, language, and, appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.				
T.5.2.3	Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.				
T.5.2.4	Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, and websites) to entertain, sell, and influence ideas and opinions.				
T.5.3.1	Identify, discuss, and cite various types of resources.				
T.5.3.2	Modify an existing multimedia story to include student narration.				
T.5.3.3	Use storyboard, menus, and branching to modify or create non-linear products, citing sources.				
T.5.4.1	Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.				
T.5.4.2	Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.				
T.5.4.3	Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.				
T.5.4.4	Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).				

Standard 6. The student will demonstrate ability to utilize Internet and other telecommunications resources.					
Benchmark		Don't know	Know a little	Know well	Can teach
T.6.1.1	Identify and discuss the Internet as a source of information at school and home.				
T.6.1.2	Discuss the origin of the Internet.				
T.6.1.3	Explore Internet resources and information and discuss the variety and types of information found.				
T.6.1.4	Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.				
T.6.2.1	Identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, World Wide Web, digital information, URL, keyword, search engine, navigation, resources, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.				
T.6.2.2	Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.				
T.6.2.3	Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).				
T.6.2.4	Use Internet resources to locate information then discuss & compare findings.				
T.6.2.5	Cite sources of information (print and non-print) for a project.				
T.6.3.1	Plan, discuss, & use search strategies with two or more criteria to find information online.				
T.6.3.2	Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.				
T.6.3.3	Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.				
T.6.3.4	Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communications.				
T.6.4.1	Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks (e.g., password, firewalls, spam, security, Fair Use, AUP/IUP's, IP address, Intranet, private networks, discussion forum, threaded discussion, LANS, WANs, netiquette, child predators, scammers, hackers).				
T.6.4.2	Select and justify use of appropriate collaborative tools (e.g., surveys, email, discussion forums, web pages, wikis, online videoconferencing, documents, etc.) to survey, collect, share, present, and communicate information for the intended audience and purpose.				
T.6.4.3	Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.				
T.6.4.4	Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.				

Technology/Computer Literacy Student Checklist **Name: _____**

Standard 1. The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.		**Can Do**
T.1.1.1	Identify the computer as a machine that helps people communicate, work, and play.	
T.1.1.2	Recognize, discuss, and model correct use of common computer terms.	
T.1.1.3	Identify and discuss common features and functions of computer software and devices.	
T.1.1.4	Identify and discuss correct and responsible use and care of technology resources.	
T.1.1.5	Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and in society in general.	
T.1.1.6	Investigate computer/technology-related careers and occupations from the past, present, and future.	
T.1.1.7	Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.	
T.1.2.1	Recognize and discuss the rights of ownership of computer-created and online work.	
T.1.2.2	Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.	
T.1.2.3	Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.	
T.1.2.4	Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, language), especially as related to use during class and for class projects and assignments.	
T.1.3.1	Recognize, discuss, and use terms and concepts related to networks (e.g., stand alone, network, file server, LANs, WANs) and protection of computers, networks, and information (virus protection, network security, firewalls, privacy laws).	
T.1.3.2	Investigate, recognize and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.	
T.1.3.3	Identify and discuss the benefits of non-networked and networked computers.	
T.1.4.1	Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle between two windows, copy and paste data between two windows on the desktop).	
T.1.4.2	Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.	
Standard 2. The student will demonstrate an understanding of databases and ability to create databases.		**Can Do**
T.2.1.1	Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.	
T.2.1.2	Identify and discuss how and why databases are used in an information-intensive society (e.g., in education, government, business, community (grocery, pharmacy), and home).	
T.2.1.3	Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.	
T.2.2.1	Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).	
T.2.2.2	Use prepared databases to sort alphabetically/numerically in ascending/descending order.	
T.2.2.3	Modify prepared databases to enter/edit additional information and cite the source.	

T.2.2.4	Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, and web pages).	
T.2.3.1	Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.	
T.2.3.2	Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.	
T.2.4.1	Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.	
T.2.4.2	Plan and develop a simple database to enter, edit, collect, organize, and display data.	
T.2.4.3	Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.	
T.2.4.4	Plan and develop database reports to organize data, create reports, and present findings, citing sources.	
T.2.4.5	Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.	
Standard 3. The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.		**Can Do**
T.3.1.1	Identify spreadsheets as a tool for organizing information.	
T.3.1.2	Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, communications, transportation, mathematics, science).	
T.3.1.3	Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, display, cell, column, row, values, labels, chart, formula, sort, classify, bar graphs, line graphs, pie charts).	
T.3.2.1	Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.	
T.3.2.2	Use spreadsheet software to enter, display, and identify types (text and numeric) of data.	
T.3.2.3	Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.	
T.3.3.1	Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.	
T.3.3.2	Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.	
T.3.4.1	Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.	
T.3.4.2	Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., word processing, multimedia, and web pages), citing sources.	
Standard 4. The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.		**Can Do**
T.4.1.1	Identify basic word processing terms.	
T.4.1.2	Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert, enter/return, backspace, delete) on the keyboard.	
T.4.1.3	Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.	
T.4.1.4	With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.	
T.4.1.5	Demonstrate correct finger placement for home row keys.	

T.4.2.1	Recognize and explain the advantages and disadvantages of using word processing to create documents.	
T.4.2.2	Identify, discuss, and use word processing as a tool to open, edit, print, and save documents.	
T.4.2.3	Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, spell check).	
T.4.2.4	Use the formatting toolbar to format and change the appearance of word processing documents.	
T.4.2.5	Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories.	
T.4.3.1	Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.	
T.4.3.2	Recognize and use menu and tool bar features to edit and make corrections to documents.	
T.4.3.3	Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.	
T.4.3.4	Identify, discuss, and use WP/DTP menu and tool bar terms and concepts to describe documents.	
T.4.3.5	Select and use WP/DTP menu and tool bar features to revise and change existing documents.	
T.4.4.1	Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions to develop edit/revise, and publish documents for a specific audience and purpose.	
T.4.4.2	Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.	
T.4.4.3	Demonstrate appropriate use of copyrighted materials in word processing documents.	
T.4.4.4	Use instructor-prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.	
T.4.4.5	Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.	

Standard 5. The student will demonstrate an understanding of multimedia and ability to create multimedia presentations.		**Can Do**
T.5.1.1	Identify and discuss components of multimedia.	
T.5.1.2	Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.	
T.5.1.3	Recognize and explain the advantages and disadvantages of using multimedia to develop products.	
T.5.2.1	Identify, discuss, and use common multimedia terms and concepts.	
T.5.2.2	Identify and discuss issues (e.g., personal information, images, content, language, and appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.	
T.5.2.3	Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.	
T.5.2.4	Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, websites) to entertain, sell, and influence ideas and opinions.	
T.5.3.1	Identify, discuss, and cite various types of resources.	
T.5.3.2	Modify an existing multimedia story to include student narration.	
T.5.3.3	Use storyboard, menus, and branching to modify or create non-linear products, citing sources.	
T.5.4.1	Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.	

T.5.4.2	Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.	
T.5.4.3	Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.	
T.5.4.4	Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).	
Standard 6. The student will demonstrate ability to utilize Internet and other telecommunications resources.		**Can Do**
T.6.1.1	Identify and discuss the Internet as a source of information at school and home.	
T.6.1.2	Discuss the origin of the Internet.	
T.6.1.3	Explore Internet resources and information and discuss the variety and types of information found.	
T.6.1.4	Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.	
T.6.2.1	Identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, WWW, digital information, URL, keyword, search engine, navigation, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.	
T.6.2.2	Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.	
T.6.2.3	Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).	
T.6.2.4	Use Internet resources to locate information then discuss and compare findings for usefulness.	
T.6.2.5	Cite sources of information (print and non-print) for a project.	
T.6.3.1	Plan, discuss, and use search strategies with two or more criteria to find information online.	
T.6.3.2	Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.	
T.6.3.3	Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.	
T.6.3.4	Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communications.	
T.6.4.1	Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks.	
T.6.4.2	Select and justify use of appropriate collaborative tools to survey, collect, share, present, and communicate information for the intended audience and purpose.	
T.6.4.3	Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.	
T.6.4.4	Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.	

Technology/Computer Literacy Instructor Checklist

Standard 1. The student will demonstrate knowledge of important issues of a technology-based society and exhibit ethical behaviors related to the use of computers, digital resources, and other technologies.		**Materials Used – Include specific activity, book, page number, etc.**
T.1.1.1	Identify the computer as a machine that helps people communicate, work, and play.	
T.1.1.2	Recognize, discuss, and model correct use of common computer terms.	
T.1.1.3	Identify and discuss common features and functions of computer software and devices.	
T.1.1.4	Identify and discuss correct and responsible use and care of technology resources.	
T.1.1.5	Identify and discuss the uses of and changes in technology devices and the impact technological changes have had on business, transportation, communications, industry, and agriculture in the student's local community and in society in general.	
T.1.1.6	Investigate computer/technology-related careers and occupations from the past, present, and future.	
T.1.1.7	Identify and discuss technology skills needed for the workplace now and in the future and how they impact the student as an adult learner today.	
T.1.2.1	Recognize and discuss the rights of ownership of computer-created and online work.	
T.1.2.2	Recognize, discuss, and model appropriate, responsible, ethical, and safe use of computers, mobile phones, wireless networks, LANs, and digital information (e.g., security, privacy, passwords, personal information), and recognize possible consequences of unethical behavior.	
T.1.2.3	Recognize and discuss how Copyright Laws and Fair Use Guidelines protect ownership of individual's, group's, and companies' intellectual property and creative works and the importance of citing sources.	
T.1.2.4	Recognize and discuss consequences of misuse of copyrighted property and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, language), especially as related to use during class and for class projects and assignments.	
T.1.3.1	Recognize, discuss, and use terms and concepts related to networks (e.g., stand alone, network, file server, LANs, WANs) and protection of computers, networks, and information (virus protection, network security, firewalls, privacy laws).	
T.1.3.2	Investigate, recognize and discuss why computers, networks, and information must be protected from viruses, vandalism, and intrusion, both malicious and mischievous; discuss appropriate technology tools (virus software) used to protect them.	
T.1.3.3	Identify and discuss the benefits of non-networked and networked computers.	
T.1.4.1	Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle between two windows, copy and paste data between two windows on the desktop).	
T.1.4.2	Recognize and discuss strategies for identifying, solving, and preventing minor hardware and software problems.	

Standard 2. The student will demonstrate an understanding of databases and ability to create databases.		Materials Used – Include specific activity, book, page number, etc.
T.2.1.1	Identify and discuss print (e.g., phone book) and electronic databases (e.g., automated circulation system, CD-ROM encyclopedias) as a way to collect, organize, and display data.	
T.2.1.2	Identify and discuss how and why databases are used in an information-intensive society [e.g., in education, government, business, community (grocery, pharmacy), and home].	
T.2.1.3	Identify and discuss database terms and concepts (e.g., sort, search, filter, keyword, data entry, field, record, list) using print and/or electronic databases to demonstrate.	
T.2.2.1	Plan, discuss, and use keyword searches or filters using one criterion in prepared electronic databases (e.g., automated circulation, encyclopedia, etc.).	
T.2.2.2	Use prepared databases to sort alphabetically/numerically in ascending/descending order.	
T.2.2.3	Modify prepared databases to enter/edit additional information and cite the source.	
T.2.2.4	Modify databases to organize, analyze, interpret data, and create reports (e.g., documents, multimedia project, and web pages).	
T.2.3.1	Use simple databases to locate, organize, analyze, evaluate, compare, and present information, citing sources of information.	
T.2.3.2	Using a prepared database, apply sort and search/filter functions to organize, analyze, interpret, and evaluate findings.	
T.2.4.1	Develop and use search strategies with two or more criteria to solve problems, make decisions, and report findings.	
T.2.4.2	Plan and develop a simple database to enter, edit, collect, organize, and display data.	
T.2.4.3	Use knowledge of database terms, concepts, functions, and operations to explain strategies used to plan and develop a simple database.	
T.2.4.4	Plan and develop database reports to organize data, create reports, and present findings, citing sources.	
T.2.4.5	Select and use appropriate database features and functions to collect, organize information, and create reports for use in other projects or media (e.g., documents, multimedia project, web pages), citing sources.	
Standard 3. The student will demonstrate an understanding of the ability to create, extract information from, and interpret spreadsheets.		**Materials Used – Include specific activity, book, page number, etc.**
T.3.1.1	Identify spreadsheets as a tool for organizing information.	
T.3.1.2	Recognize, discuss, and investigate how spreadsheets are used to process information (e.g., organize, calculate, graph data, solve problems, make predictions, and present data) in a variety of settings (e.g., schools, government, business, industry, communications, transportation, mathematics, science).	

T.3.1.3	Identify and discuss spreadsheet terms and concepts (e.g., collect, organize, classify, graph, display, cell, column, row, values, labels, chart, formula, sort, classify, bar graphs, line graphs, pie charts).	
T.3.2.1	Modify data in a prepared spreadsheet and observe the changes that occur to make predictions.	
T.3.2.2	Use spreadsheet software to enter, display, and identify types (text and numeric) of data.	
T.3.2.3	Recognize, discuss, and use graphs to display and interpret data in prepared spreadsheets.	
T.3.3.1	Modify or create and use spreadsheets to solve problems by performing calculations using simple formulas and functions (e.g., +, -, *, /, sum, average) and display data graphically.	
T.3.3.2	Use spreadsheet concepts and functions (e.g., median, range, mode) to calculate, represent, and explain data.	
T.3.4.1	Modify or create a spreadsheet by using the features and functions previously learned to analyze and interpret information, solve problems, make decisions, and support, display, and present findings, citing sources.	
T.3.4.2	Modify or create and use spreadsheets to calculate and graph data to incorporate into other documents or projects (e.g., word processing, multimedia, and web pages), citing sources.	
Standard 4. The student will demonstrate knowledge and skills in keyboarding, word processing, and desktop publishing.		**Materials Used – Include specific activity, book, page number, etc.**
T.4.1.1	Identify basic word processing terms.	
T.4.1.2	Identify, locate, and use letters, numbers, and special keys (e.g., arrow keys, space bar, shift, insert, enter/return, backspace, delete) on the keyboard.	
T.4.1.3	Identify, discuss, and use word processing as a tool to enter letters, numbers, words, and phrases.	
T.4.1.4	With a simple document, identify, discuss, and use menu/tool bar functions in word processing applications.	
T.4.1.5	Demonstrate correct finger placement for home row keys.	
T.4.2.1	Recognize and explain the advantages and disadvantages of using word processing to create documents.	
T.4.2.2	Identify, discuss, and use word processing as a tool to open, edit, print, and save documents.	
T.4.2.3	Identify and use basic word processing terms and concepts (e.g., desktop, menu, tool bar, document, text, line spacing, margins, spell check).	
T.4.2.4	Use the formatting toolbar to format and change the appearance of word processing documents.	
T.4.2.5	Use word processing as a tool to write, edit, and publish sentences, paragraphs, and stories.	
T.4.3.1	Use published documents (e.g., letter, memo, newspaper) to identify and discuss document design and layout as a class.	
T.4.3.2	Recognize and use menu and tool bar features to edit and make corrections to documents.	
T.4.3.3	Demonstrate knowledge of WP/DTP tools to develop documents, which include data imported from a spreadsheet or database.	
T.4.3.4	Identify, discuss, and use WP/DTP menu and tool bar terms and concepts to describe documents.	

T.4.3.5	Select and use WP/DTP menu and tool bar features to revise and change existing documents.	
T.4.4.1	Recognize, discuss, select, and use WP/DTP terms, concepts, features, and functions to develop edit/revise, and publish documents for a specific audience and purpose.	
T.4.4.2	Demonstrate knowledge of the advantages and disadvantages of using word processing to develop, publish, and present information to a variety of audiences.	
T.4.4.3	Demonstrate appropriate use of copyrighted materials in word processing documents.	
T.4.4.4	Use instructor-prepared rubrics to evaluate the quality of published documents/projects for content, design, and appropriate use of resources.	
T.4.4.5	Use proper keyboarding techniques to improve accuracy, speed, and general efficiency in computer operation.	

Standard 5. The student will demonstrate an understanding of multimedia and ability to create multimedia presentations.		**Materials Used – Include specific activity, book, page number, etc.**
T.5.1.1	Identify and discuss components of multimedia.	
T.5.1.2	Use multimedia software to illustrate words, phrases, concepts, numbers, and symbols.	
T.5.1.3	Recognize and explain the advantages and disadvantages of using multimedia to develop products.	
T.5.2.1	Identify, discuss, and use common multimedia terms and concepts.	
T.5.2.2	Identify and discuss issues (e.g., personal information, images, content, language, and appropriateness and accuracy of information) and guidelines to consider in selection and use of materials for multimedia projects.	
T.5.2.3	Identify, discuss, and use multimedia tools (e.g., insert, import, create, edit, publish) to combine text and graphics.	
T.5.2.4	Demonstrate knowledge of multimedia tools and concepts used by media (e.g., games, video, radio/TV broadcasts, websites) to entertain, sell, and influence ideas and opinions.	
T.5.3.1	Identify, discuss, and cite various types of resources.	
T.5.3.2	Modify an existing multimedia story to include student narration.	
T.5.3.3	Use storyboard, menus, and branching to modify or create non-linear products, citing sources.	
T.5.4.1	Demonstrate knowledge of the advantages and disadvantages of using multimedia to develop, publish, and present information to a variety of audiences.	
T.5.4.2	Use menu and tool bar features to edit, modify, and revise multimedia projects to present information for a different audience or purpose than the original document intended.	
T.5.4.3	Plan, design, and develop a multimedia product using data (e.g., graphs, charts, database reports) to present information in the most effective way, citing sources.	

T.5.4.4	Create or modify and use rubrics to evaluate multimedia presentations for elements (e.g., organization, content, design, accuracy, purpose, appropriateness for target audience, presentation, effectiveness, ethical use of resources, citation).	
Standard 6. The student will demonstrate ability to utilize Internet and other telecommunications resources.		**Materials Used – Include specific activity, book, page number, etc.**
T.6.1.1	Identify and discuss the Internet as a source of information at school and home.	
T.6.1.2	Discuss the origin of the Internet.	
T.6.1.3	Explore Internet resources and information and discuss the variety and types of information found.	
T.6.1.4	Identify, discuss, and chart elements that make an online resource useful, appropriate, and safe.	
T.6.2.1	Identify, discuss, and use common terms/concepts used with the Internet, e.g., online, browser, WWW, digital information, URL, keyword, search engine, navigation, web address, web page, hyperlinks/links, bookmarks/favorites, webmaster, etc.	
T.6.2.2	Identify online resources as the work of individuals/groups/companies and discuss why citing resources is necessary.	
T.6.2.3	Identify and discuss Internet telecommunications as a tool for communication and collaboration (e.g., email, messaging, and videoconferencing).	
T.6.2.4	Use Internet resources to locate information then discuss and compare findings for usefulness.	
T.6.2.5	Cite sources of information (print and non-print) for a project.	
T.6.3.1	Plan, discuss, and use search strategies with two or more criteria to find information online.	
T.6.3.2	Identify, discuss, and use online collaborative tools (e.g., email, surveys, videoconferencing, wikis, documents) to collect and present data.	
T.6.3.3	Locate, select, organize, and present information from the Internet for a specific purpose and audience, citing sources.	
T.6.3.4	Recognize, discuss, and use email, videoconferencing, and/or web conferencing as a means of interactive communications.	
T.6.4.1	Recognize, discuss, and use terms and concepts associated with safe, effective, and efficient use of telecommunications, Internet, and networks.	
T.6.4.2	Select and justify use of appropriate collaborative tools to survey, collect, share, present, and communicate information for the intended audience and purpose.	
T.6.4.3	Plan, select, evaluate, interpret, and use information from a variety of digital resources to develop assignment, project, or presentation.	
T.6.4.4	Use evaluation tools as a guide to select and evaluate Internet resources and information for content and usefulness for intended audience and purpose.	