

ELA Standards
(Reading, Writing, Grammar/Conventions)
4th Grade

Standard	Student Friendly Language	Vocabulary
Reading		
<p>ELA4R1 The student demonstrates comprehension and shows evidence of a warranted and responsible explanation of a variety of literary and informational texts.</p> <p>For literary texts, the student identifies the characteristics of various genres and produces evidence of reading that:</p> <p>a. Relates theme in works of fiction to personal experience.</p> <p>b. Identifies and analyzes the elements of plot, character, and setting in stories read, written, viewed, or performed.</p> <p>c. Identifies the speaker of a poem or story.</p> <p>d. Identifies sensory details and figurative language.</p> <p>e. Identifies and shows the relevance of foreshadowing clues.</p>	<p>Students will understand the theme in a fictional story and how it can relate to their personal lives.</p> <p>Students will understand plot, character, and setting in a story.</p> <p>Students will identify the speaker of a poem or story.</p> <p>Student will identify elements in a story that use the five senses or another type of figurative language: metaphor, simile, idiom, personification, and alliteration.</p>	<p>literary text theme fiction personal experience</p> <p>literary elements plot character setting identifies/analyzes</p> <p>poem speaker</p> <p>sensory details figurative language metaphor simile idiom personification alliteration</p>

<p>f. Makes judgments and inferences about setting, characters, and events and supports them with elaborating and convincing evidence from the text.</p>	<p>Students make logical judgments and inferences about setting, character, and events based on evidence in the text.</p>	<p>judgment inferences infer</p>
<p>g. Identifies similarities and differences between the characters or events and theme in a literary work and the actual experiences in an author's life.</p>	<p>Students will compare and contrast the characters, events, and themes in a story to the author's personal life experiences.</p>	<p>events</p>
<p>h. Identifies themes and lessons in folktales, tall tales, and fables.</p>	<p>Students can identify and describe the theme and lessons in a folktale, tall tale, or fable.</p>	<p>folktale tall tale fable lesson</p>
<p>i. Identifies rhyme and rhythm, repetition, similes, and sensory images in poems.</p>	<p>Students will identify and understand rhyme, rhythm, and repetition in poems. Students will locate similes and sensory images in poems.</p>	<p>rhyme rhyme scheme rhythm repetition sensory images similes</p>
<p>For informational texts, the student reads and comprehends in order to develop understanding and expertise and produces evidence of reading that:</p>		
<p>a. Locates facts that answer the reader's questions.</p>	<p>Students can locate facts in a text to answer reader's questions.</p>	<p>facts locate and recall</p>
<p>b. Identifies and uses knowledge of common textual features (e.g., paragraphs, topic sentences, concluding sentences, glossary).</p>	<p>Students will understand and identify paragraphs, topic sentences, concluding sentences, and glossaries.</p>	<p>textual features paragraph topic sentence concluding sentence glossary</p>
<p>c. Identifies and uses knowledge of common graphic features (e.g., charts, maps, diagrams, illustrations).</p>	<p>Students will understand and identify the common features of charts, maps, diagrams, and illustrations as graphic features in a text.</p>	<p>graphic features graphic sources charts maps diagrams illustrations</p>

<p>d. Identifies and uses knowledge of common organizational structures (e.g., chronological order, cause and effect).</p> <p>e. Distinguishes cause from effect in context.</p> <p>f. Summarizes main ideas and supporting details.</p> <p>g. Makes perceptive and well-developed connections.</p> <p>h. Distinguishes fact from opinion or fiction.</p>	<p>Students will understand and identify different organizational structures in text.</p> <p>Student can tell the difference between the cause and the effect of events in a text.</p> <p>Student can use main ideas and supporting details to summarize texts.</p> <p>Students will read a text and form connections based on their personal experience, the real world, or other texts.</p> <p>Students can tell the difference between facts and opinions in a text.</p>	<p>organizational structures text structures chronological order sequencing cause and effect main idea and supporting detail compare and contrast</p> <p>summarize</p> <p>text-to-self text-to-text text-to-world connections perceptions</p> <p>fact opinion</p>
<p>ELA4R2 The student consistently reads at least twenty-five books or book equivalents (approximately 1,000,000 words) each year. The materials should include traditional and contemporary literature (both fiction and non-fiction) as well as magazines, newspapers, textbooks, and electronic material. Such reading should represent a diverse collection of material from at least three different literary forms and from at least five different writers.</p>	<p>Students will read at least 25 books, including fiction and nonfiction, each school year which will include magazines, newspapers, and textbooks. Students will explore literature by different authors.</p>	<p>fiction nonfiction traditional literature contemporary literature magazine newspaper textbook electronic materials literary form websites</p>

<p>ELA4R3 The student understands and acquires new vocabulary and uses it correctly in reading and writing. The student</p> <p>a. Reads a variety of texts and incorporates new words into oral and written language.</p> <p>b. Determines the meaning of unknown words using their context.</p> <p>c. Identifies the meaning of common root words to determine the meaning of unfamiliar words.</p> <p>d. Determines meanings of words and alternate word choices using a dictionary or thesaurus.</p> <p>e. Identifies the meaning of common prefixes (e.g., un-, re-, dis-).</p> <p>f. Identifies the meaning of common idioms and figurative phrases.</p> <p>g. Identifies playful uses of language (e.g., puns, jokes, palindromes).</p> <p>h. Recognizes and uses words with multiple meanings (e.g., sentence, school, hard) and determines which meaning is intended from the context of the sentence.</p> <p>i. Identifies and applies the meaning of the terms antonym, synonym, and homophone.</p>	<p>Students will add new words to their vocabularies through reading.</p> <p>Students will discover meaning of unknown words using text clues.</p> <p>Students will use root words to understand the meaning of a word they do not know.</p> <p>Students will be able to properly use a dictionary and thesaurus to find word meaning and synonyms.</p> <p>Students will know the meanings of commonly used prefixes.</p> <p>Students will learn about the meanings of commonly used idioms and other figurative phrases.</p> <p>Students will use playful language: puns, jokes, palindromes.</p> <p>Students will use words that have multiple meanings. Students will determine which meaning is correct based on the context clues.</p> <p>Students will use and understand antonyms, synonyms, and homophones.</p>	<p>oral language written language</p> <p>context clues</p> <p>root words</p> <p>dictionary guide words alphabetical (ABC) order thesaurus synonyms antonyms reference materials</p> <p>prefix suffix root words</p> <p>idioms figurative phrases</p> <p>playful language puns jokes palindromes</p> <p>multiple meaning words</p> <p>antonym synonym homophone</p>
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<p>ELA4R4 The student reads aloud, accurately (in the range of 95%), familiar material in a variety of genres, in a way that makes meaning clear to listeners. The student</p> <p>a. Uses letter-sound knowledge to decode written English and uses a range of cueing systems (e.g., phonics and context clues) to determine pronunciation and meaning.</p> <p>b. Uses self-correction when subsequent reading indicates an earlier miscue (self-monitoring and self-correcting strategies).</p> <p>c. Reads with a rhythm, flow, and meter that sounds like everyday speech (prosody).</p>	<p>Students will use letter-sound knowledge to correctly pronounce words and determine meaning.</p> <p>Students will self-correct mistakes and monitor their progress and understanding while reading.</p> <p>Students will read with rhythm, flow, and meter.</p>	<p>letter-sound knowledge cueing systems pronunciation phonics</p> <p>self-correction self-monitoring miscue</p> <p>rhythm flow meter prosody</p>
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Writing

<p>ELA4W1 The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure. The student</p> <p>a. Selects a focus, an organizational structure, and a point of view based on purpose, genre expectations, audience, length, and format requirements.</p>	<p>Student's writing will be structured, set a context, engage the reader, maintain a clear focus, and have a clear ending.</p> <p>Student's writing will focus on structure and point of view based on their genre, purpose, and audience.</p>	<p>organizational focus coherent focus closure context engaging</p> <p>point of view purpose genre audience</p>
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<p>b. Writes texts of a length appropriate to address the topic or tell the story.</p> <p>c. Uses traditional structures for conveying information (e.g., chronological order, cause and effect, similarity and difference, and posing and answering a question).</p> <p>d. Uses appropriate structures to ensure coherence (e.g., transition elements).</p>	<p>Students will write pieces long enough to address the topic or story.</p> <p>Students will use text structures in their writing (such as chronological order or cause and effect).</p> <p>Students use good transitions to make their writing tie together.</p>	<p>length topic</p> <p>chronological order cause and effect similarity and difference posing and answering a question</p> <p>transitions</p>
<p>ELA4W2 The student demonstrates competence in a variety of genres.</p> <p>The student produces a narrative that:</p> <p>a. Engages the reader by establishing a context, creating a speaker's voice, and otherwise developing reader interest.</p> <p>b. Establishes a plot, setting, and conflict, and/or the significance of events.</p> <p>c. Creates an organizing structure.</p> <p>d. Includes sensory details and concrete language to develop plot and character.</p> <p>e. Excludes extraneous details and inconsistencies.</p> <p>f. Develops complex characters through actions describing the motivation of characters and character conversation.</p>	<p>Students create a voice in their narrative to engage the reader.</p> <p>Students establish a plot, setting, events, and conflict in their narrative writing.</p> <p>Students will organize their writing through structure.</p> <p>Students will include sensory details and use concrete language to develop their plot and characters.</p> <p>Students will not include unneeded details in their narrative.</p> <p>Students will develop strong characters in their writing.</p> <p>Students use suspense, dialogue, or other strategies in their narrative</p>	<p>narrative speaker's voice</p> <p>plot setting conflict events</p> <p>sensory detail concrete language</p> <p>extraneous details inconsistencies</p> <p>motivation of character character conversation</p> <p>dialogue narrative strategies</p>
<p>g. Uses a range of appropriate narrative strategies such as dialogue, tension, or suspense.</p>		

	<p>writing.</p> <p>Students have a conclusion to their writing.</p> <p>Students create a voice in their informational writing to engage the reader.</p> <p>Students will focus their writing on one issue or situation.</p> <p>Student's writing will focus on structure through purpose, audience, and context.</p> <p>Students will include facts and details in informational writing.</p> <p>Students will not include unneeded details in their writing.</p> <p>Students will use strategies such as description or analysis in their writing.</p> <p>Students will gather information from two or more sources when writing an informational text.</p> <p>Students have a conclusion to their writing.</p> <p>Students create a voice in their</p>	<p>tension suspense</p> <p>closure conclusion</p> <p>central question issue/situation</p> <p>specific purpose audience context</p> <p>facts details</p> <p>extraneous details</p> <p>describing/analyzing the subject anecdote facts and details</p> <p>speakers online materials sources</p>
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	<p>response to literature to engage the reader.</p> <p>Students will interpret, evaluate, and reflect to make a judgment.</p> <p>Students will support judgments in various ways.</p> <p>Student's writing will show that they understand the story they are responding to by retelling the main idea and a short summary.</p> <p>Students will not include unneeded details in their writing.</p> <p>Students have a conclusion to their writing.</p> <p>Students create a voice in their persuasive essay that engages the reader.</p> <p>Students will state a clear position in their persuasive writing.</p> <p>Students will support their position with evidence.</p> <p>Students will not include unneeded details in their writing.</p> <p>Student's writing will focus on structure through purpose, audience, and context.</p>	<p>judgment interpretive evaluative reflective</p> <p>reference to text authors non-print media personal knowledge</p> <p>significant details reading selection</p> <p>extraneous details</p> <p>speaker's voice</p> <p>position</p> <p>relevant evidence</p> <p>extraneous details</p> <p>specific purpose audience context</p>
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	Students have a conclusion to their writing.	
<p>ELA4W3 The student uses research and technology to support writing. The student</p> <p>a. Acknowledges information from sources.</p> <p>b. Locates information in reference texts by using organizational features (i.e. prefaces, appendices, index, glossary, and table of contents).</p> <p>c. Uses various reference materials (i.e. dictionary, thesaurus, encyclopedia, electronic information, almanac, atlas, magazines, newspapers, and key words).</p> <p>d. Demonstrates basic keyboarding skills and familiarity with computer terminology (e.g., software, memory, disk drive, hard drive).</p>	<p>Student use information from outside sources in their research papers.</p> <p>Students use the organizational features in reference materials to help locate information.</p> <p>Students use reference materials to help write their research papers.</p> <p>Students are familiar with computers and typing.</p>	<p>research technology</p> <p>sources</p> <p>reference texts organizational features prefaces appendices index glossary table of contents</p> <p>reference materials dictionary thesaurus encyclopedia electronic information, almanac atlas magazines newspapers key words</p> <p>keyboarding skills computer terminology software memory disk drive hard drive</p>

<p>ELA4W4. The student consistently uses a writing process to develop, revise, and evaluate writing. The student</p> <p>a. Plans and drafts independently and resourcefully.</p> <p>b. Revises selected drafts to improve coherence and progression by adding, deleting, consolidating, and rearranging text.</p> <p>c. Edits to correct errors in spelling, punctuation, etc.</p>	<p>Students will use the writing process.</p> <p>Students will write an outline and first copy without help from the teacher or classmates.</p> <p>Students use the editing process.</p> <p>Students work to correct spelling and punctuation in writing.</p>	<p>develop revise evaluate</p> <p>plan draft edit</p> <p>adding text deleting text consolidating rearranging text</p> <p>edit</p>
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Conventions/Grammar

<p>ELA4C1 The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats. The student</p> <p>a. Recognizes the subject-predicate relationship in sentences.</p> <p>b. Uses and identifies four basic parts of speech (adjective, noun, verb, adverb).</p> <p>c. Uses and identifies correct mechanics (end marks, commas for</p>	<p>The students properly use the English language.</p> <p>Students understand the relationship between the subject and the predicate in a sentence.</p> <p>Students can use and identify adjectives, nouns, verbs, and adverbs.</p> <p>Students correctly use mechanics, subject-verb agreement, and sentence</p>	<p>conventions grammar</p> <p>subject predicate</p> <p>adjective noun verb adverb</p> <p>mechanics end marks</p>
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<p>series, capitalization), correct usage (subject and verb agreement in a simple sentence), and correct sentence structure (elimination of sentence fragments).</p> <p>d. Uses and identifies words or word parts from other languages that have been adopted into the English language.</p> <p>e. Writes legibly in cursive, leaving space between letters in a word and between words in a sentence.</p> <p>f. Uses knowledge of letter sounds, word parts, word segmentation, and syllabication to monitor and correct spelling.</p> <p>g. Spells most commonly used homophones correctly (there, they're, their; two, too, to).</p> <p>h. Varies the sentence structure by kind (declarative, interrogative, imperative, and exclamatory sentences and functional fragments), order, and complexity (simple, compound).</p>	<p>structure.</p> <p>Students can identify words from other languages that have been adapted to use in the English language. (example = bon voyage)</p> <p>Students can properly write in cursive.</p> <p>Students use knowledge of word parts and other strategies to monitor and correct spelling.</p> <p>Students can correctly use and spell homophones.</p> <p>Students use a variety of sentence structures.</p>	<p>commas (in a series) capitalization subject and verb agreement simple sentence sentence structure sentence fragments</p> <p>cursive</p> <p>letter sounds word parts word segmentation syllabication</p> <p>homophones</p> <p>declarative interrogative imperative exclamatory sentences functional fragments simple sentences compound sentences</p>
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Math Standards

4th Grade

Standard	Student Friendly Language	Vocabulary
Numbers & Operations		
<p>M4N1 Students will further develop their understanding of how whole numbers are represented in the base-ten numeration system.</p> <p>a. Identify place value names and places from hundredths through one million.</p> <p>b. Equate a number's word name, its standard form, and its expanded form.</p>	<p>Students will understand how whole numbers in the base-ten system can be identified using place value.</p> <p>Students will understand that numbers can be expressed in a standard form, written form, and an expanded form.</p>	<p>base-ten hundreds hundredths thousand thousandths place value place</p> <p>standard form written form expanded form</p>

<p>M4N2 Students will understand and apply the concept of rounding numbers.</p> <p>a. Round numbers to the nearest ten, hundred, or thousand.</p> <p>b. Describe situations in which rounding numbers would be appropriate and determine whether to round to the nearest ten, hundred, or thousand.</p> <p>c. Understand the meaning of rounding a decimal to the nearest whole number.</p> <p>d. Represent the results of computation as a rounded number when appropriate and estimate a sum or difference by rounding numbers.</p>	<p>Students will round numbers to the nearest ten, hundred, or thousand.</p> <p>Students will understand when rounding is needed. Students will determine which place value needs to be rounded.</p> <p>Students will understand when to round a decimal to the nearest whole number.</p> <p>Students will know when to express a sum or difference as a rounded number or estimate.</p>	<p>rounding</p> <p>decimal fraction whole number</p> <p>estimate sum difference</p>
<p>M4N3 Students will solve problems involving multiplication of 2-3 digit numbers by 1-2 digit numbers.</p>	<p>Students will multiply 2-3 digit numbers by 1-2 digit numbers</p>	<p>digit product</p>

<p>M4N4 Students will further develop their understanding of division of whole numbers and divide in problem-solving situations without calculators.</p> <p>a. Know the division facts with understanding and fluency.</p> <p>b. Solve problems involving division by a 2-digit number (including those that generate a remainder).</p> <p>c. Understand the relationship between dividend, divisor, quotient, and remainder.</p> <p>d. Understand and explain the effect on the quotient of multiplying or dividing both the divisor and dividend by the same number ($2050 \div 50$ yields the same answer as $205 \div 5$).</p>	<p>Students will know their division facts with speed and ease without using a calculator.</p> <p>Students will divide by 2-digit numbers that will not divide evenly. Students will work with remainders.</p> <p>Students will understand the relationship between the number in “the house” and outside “the house.”</p> <p>Students will understand that the answer will be the same in multiplying and dividing when both the divisor and dividend have been multiplied or divided by the same number.</p>	<p>quotient</p> <p>remainder</p> <p>divisor dividend</p>
<p>M4N5 Students will further develop their understanding of the meaning of decimals and use them in computations.</p> <p>a. Understand decimals are a part of the base-ten system.</p> <p>b. Understand the relative size of numbers and order two digit decimals.</p>	<p>Students will understand numbers with decimals are part of the base-ten system.</p> <p>Students will understand which decimal fraction is larger and which one is smaller.</p>	<p>base-ten decimal</p>

<p>c. Add and subtract both one and two digit decimals.</p> <p>d. Model multiplication and division of decimals by whole numbers.</p> <p>e. Multiply and divide both one and two digit decimals by whole numbers.</p>	<p>Students will be able to add and subtract two digit decimals.</p> <p>Students will model multiplication and division of decimals by whole numbers.</p> <p>Students will divide and multiply numbers by whole numbers.</p>	
<p>M4N6 Students will further develop their understanding of the meaning of common fractions and use them in computations.</p> <p>a. Understand representations of simple equivalent fractions.</p> <p>b. Add and subtract fractions and mixed numbers with common denominators. (Denominators should not exceed twelve.)</p> <p>c. Convert and use mixed numbers and improper fractions interchangeably.</p>	<p>Students will understand pictures of fractions that are the same.</p> <p>Students will add and subtract fractions and mixed numbers with common denominators.</p> <p>Students can change mixed numbers to improper fractions and improper fractions to mixed numbers.</p>	<p>equivalent fractions numerator denominator</p> <p>common denominator mixed numbers</p> <p>improper fraction convert</p>
<p>M4N7 Students will explain and use properties of the four arithmetic operations to solve and check problems.</p> <p>a. Describe situations in which the four operations may be used and the relationships among them.</p>	<p>Students will know the four operations: addition, subtraction, multiplication and division.</p> <p>Students will be able to describe which operation to use during problem solving and in real life situations.</p>	<p>operations arithmetic operations mathematical operations</p>

<p>b. Compute using the order of operations, including parentheses.</p> <p>c. Compute using the commutative, associative, and distributive properties.</p> <p>d. Use mental math and estimation strategies to compute.</p>	<p>Students will know how the operations relate to each other. Students will use the order of operations (steps) to solve problems that contain parentheses. Students will understand the order of the steps using PEMDAS.</p> <p>Students will know and use the commutative, associative, and distributive properties.</p> <p>Students will solve problems (estimate and compute) in their heads without paper.</p>	<p>PEMDAS Please = parentheses Excuse = exponents My = multiply Dear = divide Aunt = addition Sally = subtraction Order of Operations</p> <p>commutative associative distributive</p> <p>mental math estimate compute</p>
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Measurement

<p>M4M1 Students will understand the concept of weight and how to measure weight.</p> <p>a. Use standard and metric units to measure the weight of objects.</p> <p>b. Know units used to measure weight (gram, kilogram, ounce, pound, and ton).</p>	<p>Students can measure an object's weight using two different systems of measurement (standard and metric).</p> <p>Students will measure weight using grams, kilograms, ounces, pounds, and tons.</p> <p>Students will compare grams to kilograms or ounces, pounds, and tons to one another.</p>	<p>standard units customary units metric units base-ten system weight</p> <p>gram (g) kilogram (kg) ounce (oz) pound (lb) ton (T) scale</p>
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c. Compare one unit to another within a single system of measurement.		
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<p>M4M2 Students will understand the concept of angle and how to measure angles.</p> <p>a. Use tools, such as a protractor or angle ruler, and other methods, such as paper folding or drawing a diagonal in a square, to measure angles.</p> <p>b. Understand the meaning and measure of a half rotation (180°) and a full rotation (360°).</p>	<p>Students will understand how to measure angles using tools and paper methods.</p> <p>Students will understand half rotation (180°) and full rotation (360°) of angles.</p>	<p>protractor angle ruler paper folding method diagonal acute right obtuse horizontal vertical</p> <p>half rotation full rotation straight angle</p>
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Geometry

<p>M4G1 Students will define and identify the characteristics of geometric figures through examination and construction.</p> <p>a. Examine and compare angles in order to classify and identify triangles by their angles.</p> <p>b. Describe parallel and perpendicular lines in plane geometric figures.</p> <p>c. Examine and classify quadrilaterals (including parallelograms, squares, rectangles, trapezoids, and rhombi).</p> <p>d. Compare and contrast the relationships among quadrilaterals.</p>	<p>Students will recognize and compare the types of angles. Students will name triangles by their angles.</p> <p>Students will recognize parallel and perpendicular lines in geometric figures.</p> <p>Students will be able to name and identify: parallelograms, squares, rectangles, trapezoids, and rhombi.</p> <p>Students will compare and contrast quadrilaterals.</p>	<p>right angle/right triangle obtuse angle/obtuse triangle acute angle/acute triangle straight angle</p> <p>parallel perpendicular geometric figure</p> <p>parallelogram squares rectangle trapezoid rhombus quadrilateral</p> <p>compare & contrast</p>
<p>M4G2 Students will understand fundamental solid figures.</p> <p>a. Compare and contrast a cube and a rectangular prism in terms of the number and shape of their faces, edges, and vertices.</p>	<p>Students will understand the similarities and differences between a cube and rectangular prism. They will know how to identify the faces, edges, and vertices.</p>	<p>cube rectangular prism faces edges vertices</p>

<p>b. Describe parallel and perpendicular lines and planes in connection with rectangular prisms.</p> <p>c. Construct/collect models for solid geometric figures (cubes, prisms, cylinders, etc.)</p>	<p>Students will describe parallel and perpendicular lines created by the faces on the planes of a rectangular prism.</p> <p>Students will construct (build) and collect cubes, prisms, cylinders and other solid geometric figures.</p>	<p>plane</p> <p>solid figures</p>
<p>M4G3 Students will use the coordinate system.</p> <p>a. Understand and apply ordered pairs in the first quadrant of the coordinate system.</p> <p>b. Locate a point in the first quadrant in the coordinate plane and name the ordered pair.</p> <p>c. Graph ordered pairs in the first quadrant.</p>	<p>Students will know the quadrants of the coordinate system.</p> <p>Students will plot ordered pairs in the first quadrant.</p> <p>Students will recognize a point in the first quadrant and the ordered pair it names.</p> <p>Students will graph ordered pairs naming the coordinates.</p>	<p>quadrant coordinate system coordinates</p> <p>ordered pairs plot</p> <p>graphing</p>

Algebra

M4A1 Students will represent and interpret mathematical relationships in quantitative expressions.

a. Understand and apply patterns and rules to describe relationships and solve problems.

b. Represent unknowns using symbols, such as \square and Δ .

c. Write and evaluate mathematical expressions using symbols and different values.

Students will understand mathematical relationship (finding the variable) in quantitative expressions.

Students will think about mathematical relationships to describe and solve algebra problems.

Students will understand that unknown numbers can be represented using symbols.

Students will be able to write and solve problems that have variables or symbols.

variable
quantitative expression
algebra
unknown value

patterns
rules (order of operations)
algebra problem

unknown numb/unknown quantities
symbols (\square and Δ)

Data Analysis

M4D1 Students will gather, organize, and display data according to the situation and will compare related features.

a. Represent data in bar, line, and pictographs.

b. Investigate the features and tendencies of graphs.

c. Compare different graphical representations for a given set of data.

d. Identify missing information and duplications in data.

Students will represent data on bar graphs, line graphs, and pictographs.

Students will look for features on each type graph. Students will describe the tendencies of each type of graph.

Students will compare different types of graphs to find which best represents their data.

Students will look for missing information or repeated information in a set of data.

data
bar graph
line graph
pictographs

features of graphs
tendencies

graphical representations
set of data

duplication

Science Standards

4th Grade

Standard	Student Friendly Language	Vocabulary
Earth Science		
<p>S4E1. Students will compare and contrast the physical attributes of stars, star patterns, and planets.</p> <p>a. Recognize the physical attributes of stars in the night sky such as number, size, color and patterns.</p> <p>b. Compare the similarities and differences of planets to the stars in appearance, position, and number in the night sky.</p> <p>c. Explain why the pattern of stars in a constellation stays the same, but a planet can be seen in different locations at different times.</p> <p>d. Identify how technology is used to observe distant objects in the sky.</p>	<p>Students will understand the similarities and differences in the characteristics of stars, star patterns, and planets.</p> <p>Students will recognize the characteristics (number, size, color, and patterns) of stars at night.</p> <p>Students will understand the similarities and differences between planets and stars and how they look different in the night sky.</p> <p>Students will understand that planets can be seen at different places at different times, but stars stay in the same pattern.</p> <p>Students will identify the tools that can be used to see far away objects in the sky.</p>	<p>Physical attributes</p> <p>Star</p> <p>Star pattern</p> <p>Planets (Mercury, Venus, Earth, Mar, Jupiter, Saturn, Uranus, Neptune, Pluto)</p> <p>Galaxy</p> <p>Universe</p> <p>Inner planets</p> <p>Outer planers</p> <p>Gas giants</p> <p>Constellation</p> <p>Technology/tools</p> <p>Telescope</p> <p>Satellite</p> <p>Distant objects</p>
<p>S4E2. Students will model the position and motion of the earth in the solar system and will explain the</p>	<p>Students will understand and model the position of the earth and the ways the earth moves within the solar</p>	<p>Position</p> <p>Orbit</p> <p>Moon</p>

<p>role of relative position and motion in determining sequence of the phases of the moon.</p> <p>a. Explain the day/night cycle of the earth using a model.</p> <p>b. Explain the sequence of the phases of the moon.</p> <p>c. Demonstrate the revolution of the earth around the sun and the earth's tilt to explain the seasonal changes.</p> <p>d. Demonstrate the relative size and order from the sun of the planets in the solar system.</p>	<p>system. Students can explain the position and motion of the earth and how that relates to the other planets and the phases of the moon.</p> <p>Students will be able to explain why the cycles of day and night are different by making a model.</p> <p>Students will understand the order of the moon's phases.</p> <p>Students will understand that seasons (fall, winter, etc.) are caused by the earth's tilt and earth's revolution around the sun.</p> <p>Students will understand the size of the planets in relationship to the other planets and understand their order from the sun.</p>	<p>Phases Relative position and motion Solar system</p> <p>day/night cycle</p> <p>sequence phases of the moon Moon's Phases: First quarter, Half, Crescent, Full, Gibbous</p> <p>Revolution Tilt Seasonal change</p>
<p>S4E3. Students will differentiate between the states of water and how they relate to the water cycle and weather.</p> <p>a. Demonstrate how water changes states from solid (ice) to liquid (water) to gas (water vapor/steam) and changes from gas to liquid to solid.</p> <p>b. Identify the temperatures at which water becomes a solid and at which water becomes a gas.</p> <p>c. Investigate how clouds are formed.</p> <p>d. Explain the water cycle</p>	<p>Students will know the difference between the states of water and how they relate to the water cycle and weather.</p> <p>Students will understand how water changes from ice to water to gas and back again.</p> <p>Students will know the temperatures when water becomes a solid and when water becomes a gas.</p> <p>Students will learn about how clouds are formed.</p> <p>Students will be able to explain the</p>	<p>Water cycle Weather States of water</p> <p>Ice (solid) Liquid (water) Gas (water vapor/steam)</p> <p>Temperatures Water to solid = 0C 32F Water to gas = 100C 212F Celsius Fahrenheit</p> <p>clouds</p> <p>Evaporation</p>

<p>(evaporation, condensation, and precipitation).</p> <p>e. Investigate different forms of precipitation and sky conditions. (rain, snow, sleet, hail, clouds, and fog).</p>	<p>steps of the water cycle.</p> <p>Students will identify the different forms of precipitation and sky conditions.</p>	<p>Condensation Precipitation</p> <p>Sky conditions Rain Snow Sleet Hail Clouds Fog</p>
<p>S4E4. Students will analyze weather charts/maps and collect weather data to predict weather events and infer patterns and seasonal changes.</p> <p>a. Identify weather instruments and explain how each is used in gathering weather data and making forecasts (thermometer, rain gauge, barometer, wind vane, anemometer).</p> <p>b. Using a weather map, identify the fronts, temperature, and precipitation and use the information to interpret the weather conditions.</p> <p>c. Use observations and records of weather conditions to predict weather patterns throughout the year.</p> <p>d. Differentiate between weather and climate.</p>	<p>Students will use charts and collect data to predict weather events, patterns, and changes.</p> <p>Students will be able to identify the tools used to gather weather data and making forecasts.</p> <p>Students will use weather maps to explain fronts, temperatures, and precipitation to understand the weather conditions.</p> <p>Students will look at records and at the sky to predict weather patterns.</p> <p>Students will know the difference between weather and climate.</p>	<p>Weather events Patterns and seasonal change Data Predict</p> <p>Weather instruments Thermometer Rain gauge Barometer Wind vane anemometer</p> <p>Weather map Fronts Weather conditions</p> <p>climate</p>

Physical Science

<p>S4P1. Students will investigate the nature of light using tools such as mirrors, lenses, and prisms.</p> <p>a. Identify materials that are transparent, opaque, and translucent.</p> <p>b. Investigate the reflection of light</p>	<p>Students will learn about the nature of light using various tools.</p> <p>Student will know the difference between transparent, opaque, and translucent objects.</p> <p>Students will use a mirrors and a light</p>	<p>Nature of light Mirrors Lenses Prisms</p> <p>Transparent Opaque Translucent</p> <p>Reflection</p>
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<p>using a mirror and a light source.</p> <p>c. Identify the physical attributes of a convex lens, a concave lens, and a prism and where each is used.</p>	<p>source to learn about the reflection of light.</p> <p>Students will find the differences between a convex lens, a concave lens, and a prism.</p>	<p>Light source</p> <p>Convex lens Concave lens</p>
<p>S4P2. Students will demonstrate how sound is produced by vibrating objects and how sound can be varied by changing the rate of vibration.</p> <p>a. Investigate how sound is produced.</p> <p>b. Recognize the conditions that cause pitch to vary.</p>	<p>Students will understand how sound is produced through vibration. Students will understand how sound is changed by the rate of movement.</p> <p>Students will explore how sound is made.</p> <p>Students will know what causes pitch to vary.</p>	<p>Sound Vibration Rate of vibrations Frequency Sound waves</p> <p>Sound production</p> <p>pitch</p>
<p>S4P3. Students will demonstrate the relationship between the application of a force and the resulting change in position and motion on an object.</p> <p>a. Identify simple machines and explain their uses (lever, pulley, wedge, inclined plane, screw, wheel and axle).</p> <p>b. Using different size objects, observe how force affects speed and motion.</p> <p>c. Explain what happens to the speed or direction of an object when a greater force than the initial one is applied.</p> <p>d. Demonstrate the effect of gravitational force on the motion of an object.</p>	<p>Students will explore the relationship between force and motion.</p> <p>Student will be able to identify and explain the uses of simple machines.</p> <p>Students will observe how force changes speed and motion by experimenting with different size objects.</p> <p>Students will be able to explain what happens to an object when a greater force is applied.</p> <p>Students will show the effect of gravity on the motion of an object.</p>	<p>Force Position Motion</p> <p>Simple machines Lever Pulley Wedge Inclined plane Screw Wheel and axle</p> <p>Speed Friction</p> <p>Greater force</p> <p>Gravitational force gravity</p>

Life Science

<p>S4L1. Students will describe the roles of organisms and the flow of energy within an ecosystem.</p> <p>a. Identify the roles of producers, consumers, and decomposers in a community.</p> <p>b. Demonstrate the flow of energy through a food web/food chain beginning with sunlight and including producers, consumers, and decomposers.</p> <p>c. Predict how changes in the environment would affect a community (ecosystem) of organisms.</p> <p>d. Predict effects on a population if some of the plants or animals in the community are scarce or if there are too many.</p>	<p>Students will be able to describe the food web.</p> <p>Students will know the jobs of producers, consumers, and decomposers.</p> <p>Students will be able to describe the food web/chain from beginning to end.</p> <p>Students will predict and understand how changes such as pollution, adaptation, or extinction affect an ecosystem.</p> <p>Students will predict what will happen to a population if plants/animals are scarce or overpopulated.</p>	<p>Organisms Ecosystem Habitat</p> <p>Producers (plants) Consumers (animals) Decomposers (fungus) Community</p> <p>flow of energy food web food chain</p> <p>pollution adaptation extinction</p> <p>Population Scarce Over population</p>
<p>S4L2. Students will identify factors that affect the survival or extinction of organisms such as adaptation, variation of behaviors (hibernation), and external features (camouflage and protection).</p> <p>a. Identify external features of organisms that allow them to survive or reproduce better than organisms that do not have these features (for example: camouflage, use of hibernation, protection, etc.).</p> <p>b. Identify factors that may have led to the extinction of some organisms.</p>	<p>Students will predict and understand how changes such as pollution, adaptation, camouflage, hibernation, or extinction affect an ecosystem.</p> <p>Students will understand how adaptation, camouflage, hibernation, or protection affects organism survival in an ecosystem.</p> <p>Students will list factors that have led to some organism to die out.</p>	<p>Survival Extinction Adaptation External features Behaviors</p> <p>Hibernation Camouflage Protection</p>