Teaching & Learning Standards



4th GRADE

Cherokee County School District

ELA | Math | Science | Social Studies

4th Grade
English Language Arts

Scope & Sequence Structure by Quarter

Domain Four domains structure the overall framework for English Language Arts Standards: Foundations, Language, Texts, and Practices.

Big Idea The Georgia Department of Education has provided Big Ideas that serve as over-arching goals for student learning across grade levels in each domain. Cherokee County School District has adapted these Big Ideas to match the rigor and responsibility that define our literacy instruction.

Standard: Standards represent specific knowledge and skills that students should learn or master across grade bands.

Expectation: Standards are broken down by grade level through expectations.

Foundations Domain *(K-2, 3-5)* Students develop foundational literacy skills that support the interpretation and construction of texts.

Phonics Cherokee County students learn the relationships between the sounds of spoken language and the letters of written language as they decode and encode words in context and in isolation.

Fluency Cherokee County students read texts aloud or silently with speed, accuracy, and expression.

Handwriting Cherokee County students develop handwriting skills in print and cursive.

Language Domain *(K-2, 3-5, 6-8, 9-12)* Students learn and apply the structures and conventions of standard English. Students analyze how grammar works in reading and writing. Students expand vocabularies and determine word meanings as they relate to reading and writing.

Grammar Conventions Cherokee County students observe, analyze, and use the structures and conventions of Standard English grammar, usage, and mechanics as they interpret and construct texts.

Vocabulary Cherokee County students engage in a wide range of written and spoken activities during which they expand and deepen their vocabularies, build word analysis skillsets (morphology), and determine or clarify the meanings of words and phrases.

Texts Domain *(K-2, 3-5, 6-8, 9-12)* Students think critically and creatively as they develop the knowledge and skills to actively engage with a variety of texts.

Context Cherokee County students investigate the relationships between authors, purposes, and audiences of texts, and analyze the influence of contextual factors.

Structures & Style Cherokee County students analyze and use organizational structures and styles to shape ideas and information.

Techniques: Cherokee County students evaluate and apply various techniques to comprehend and shape meaning.

Research & Analysis Cherokee County students use, discuss, analyze, and curate texts as they engage in various conversations, activities, and projects about a range of grade-level texts and topics.

Practices Domain *(K-12)* Students engage routinely in four literacy practices that ground, shape, and inform the expectations of the Foundations, Language, and Texts domains.

Engagement & Intention for Comprehension & Composition (EICC) Cherokee County students develop personal and academic identities as readers and writers, approaching texts for a variety of tasks and purposes and engaging in reading and writing processes in order to deepen comprehension and strengthen composition.

Situating Texts (ST) Cherokee County students develop and apply a multilayered understanding of context, author, audience, and purpose to ground and propel the interpretation and construction of texts.

Author's Craft (AC) Cherokee County students apply knowledge of author's craft to enhance the interpretation and construction of texts.

Collaboration & Presentation (CP) Cherokee County students build and share knowledge as they engage with others in a range of settings and for a variety of purposes.

Year Long English Language Arts Practices:

Engagement & Intention for Comprehension & Composition (EICC)

K-12.P.EICC.1:Build an identity as a reader and writer, developing a repertoire of resources and tools to continuously expand participation as an active consumer and producer of texts.

K-12.P.EICC.2: Engage in written or spoken dialogue as author and audience for a variety of tasks and purposes, making intentional connections within, between, and beyond texts.

K-12.P.EICC.3: Engage with a range of complex texts for a variety of tasks and purposes, accessing and using strategies for comprehension* before, during, and after reading as part of the meaning-making process.

K-12.P.EICC.4: Compose a range of texts for a variety of purposes and audiences, flexibly engaging in writing processes to plan, draft, evaluate, revise, and edit texts.

Author's Craft (AC)

K-12.P.AC.1: Interpret texts through the author's lens by identifying, analyzing, and evaluating craft techniques that are connected to the responses, thoughts, decisions, and questions triggered by the text.

K-12.P.AC.2: Construct texts with the audience's experience in mind, basing decisions about craft techniques on context and purpose.

- K-12.P.AC.3.a: Explore and create texts in various modes and genres, developing and applying knowledge of how specific features impact meaning, tone, style, purpose, and audience

Situating Texts (ST)

K-12.P.ST.1 Develop and apply knowledge of key components of context such as background information, geographic location, cultural influences, time period, and contemporary events when interpreting and constructing texts.

K-12.P.ST.2: Interpret and construct texts by developing and applying knowledge of the strategies and techniques authors use to accommodate the target audience and achieve the text's purpose.

Collaboration & Presentation (CP)

K-12.P.CP.1: Collaborate with others to accomplish shared goals and projects.

- K-12.P.CP.2.a: Communicate clearly to present ideas, information, and texts.
- K-12.P.CP.2.b: Integrate modes and genres most appropriate to purpose and audience.
- K-12.P.CP.2.c: Vary tone, pace, and nonverbal gestures as appropriate to purpose and audience.
- K-12.P.CP.2.d: Engage in dialogue with audiences by asking and answering questions.

Quarter 1

Foundations Domain

Phonics

4.F.P.4.a:	Decode and encode words with graphemes that represent multiple letter-sound correspondences.
4.F.P.4.b:	Decode and encode single-syllable and multisyllabic words of all syllable types.
4.F.P.4.c	Decode and encode words with common prefixes and suffixes.

Fluency

4.F.F.1.a:	Increase sight word vocabulary by reading regularly and irregularly spelled words in isolation and context with accuracy and automaticity.
4.F.F.1.b:	Read a variety of unfamiliar grade-level texts with increasing automaticity.

Handwriting

4.F.H.4.a:	Form cursive letters and words legibly, using connectors between letters inside words.

Language Domain

Grammar, Usage, and Mechanics

3-5.L.GC.1:	• 1.30 Recognize and use conventional capitalization, quotation marks, and commas to indicate exact words and dialogue. • 1.32 Use interjections. • 1.36 Use commas to indicate direct address and to set off the words *yes* and *no*.

Syntax

4.L.GC.2.c:	Use correct subject and verb agreement to consistently achieve clarity in a variety of sentences.

Vocabulary

4.L.V.1.a:	Acquire a range of general, academic, and specialized vocabulary words and phrases through grade-level texts and content.

Texts Domain

Context

4.T.C.1.a:	Determine audience and explain the development of the purpose across a text.
4.T.C.1.b:	Classify various texts by mode and describe how the mode is impacted by audiences and contributes to the overall purpose and effect.

Structures & Style

4.T.SS.1.a	Compare and contrast the text features (e.g. icons, hyperlinks) and structures (e.g. chronological order, rhyme pattern) of texts written in different genres/for certain purposes, on the same topic.
4.T.SS.2.a:	Identify and explain how figurative language, including hyperboles and personification, shapes how ideas and information in texts are understood.
4.T.SS.2.b:	Use figurative language for intentional effects when expressing ideas or conveying information.

Techniques: Students should be able to flexibly employ all techniques across writing exercises.

4.T.T.1.a:	Analyze the use of narrative techniques to present ideas, design texts, and convey information about characters, setting, and plot.
4.T.T.1.e:	Apply narrative techniques (e.g., character, setting, problem, resolution, and dialogue) to develop a real or imagined experience using descriptive details, clear event sequences, and a conclusion.
4.T.T.2.a:	Discuss and evaluate techniques used to present and design expository texts, including facts and key details used to support the main idea.

Research & Analysis

4.T.RA.1.a:	Generate questions about a self-selected topic of interest to be researched, asking open-ended questions to deepen and extend understanding of the topic and related ideas and information.
4.T.RA.2.a:	Refer to specific passages or quotations from a text to support an idea, answer, or opinion.

Practices Domain

Author's Craft (AC)

K-12.P.AC.3.b:	Apply knowledge of how mode and genre impact what kinds of ideas and information are included in texts.

Quarter 2 *Cumulative review of skills from quarter 1 will continue as new skills are introduced.*

Foundations Domain

Phonics

Review and continue skills from quarter 1.

Fluency

4.F.F.1.c:	Read a wide range of grade-level texts aloud with accurate prosody (phrasing, expression, juncture/pause, and intonation) to aid comprehension.
4.F.F.1.d:	Self-correct while reading grade-level text (silently or aloud) to aid comprehension and fluency, rereading as necessary.

Handwriting

4.F.H.3.a:	Read short texts written in cursive.
4.F.H.4.b:	Use appropriate spacing between cursive words in a sentence across lines on a page.

Language Domain

Grammar, Usage, and Mechanics

3-5.L.GC.1:

- 1.21 Use coordinating conjunctions to join words, phrases, or clauses.
- 1.23 Use collective and abstract nouns.
- 1.27 Form and use prepositional phrases.
- 1.33 Use helping and linking verbs.
- 1.37 Use apostrophes to form plural possessives nouns.
- 1.39 Use subordinating conjunctions to join clauses.

Syntax

4.L.GC.2.a:	Apply understandings of sentence structure to comprehend a wide variety of grade-level texts.
4.L.GC.2.b:	Use a variety of simple, compound, and complex sentences to strengthen clarity and coherence, maintaining consistent verb tense within and between paragraphs.

Vocabulary

4.L.V.1.b:	Use grade-level general, academic, and specialized vocabulary words and phrases to enhance communication in a variety of settings.
4.L.V.2.a:	Deconstruct words using knowledge of Greek and Latin roots, root words, and affixes to determine meaning.
4.L.V.2.b:	Explain how the part of speech and the meaning of a root or root word changes based on the use of different affixes (e.g., beautiful as an adjective vs. beautifully as an adverb).

4.L.V.2.c:	Construct words using knowledge of Greek and Latin roots, root words, and affixes.
4.L.V.3.a:	Use context (e.g., definitions, examples, or restatements in text) to determine or clarify the meaning of unknown and multiple-meaning words and phrases.

Texts Domain

Context

4.T.C.1.c:	Create multimodal texts, using features of pre-selected modes for a specific purpose and audience.
4.T.C.2.c:	Identify the ways in which the author indicates the context in which a text is written (e.g., time period, individual, situational).

Structures & Style

4.T.SS.1.b	Design texts using a variety of text structures and features, according to purpose and audience.

Techniques: Students should be able to flexibly employ all techniques across writing exercises.

4.T.T.2.b:	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.
4.T.T.2.c:	Integrate and classify information from multiple texts on the same topic in relationship to important points and key details.
4.T.T.2.d:	Apply expository techniques that clearly introduce a topic, group paragraphs or sections to develop the topic with facts and other information (e.g., definitions, concrete details, quotations), use precise language, and provide a concluding statement or section.

Research & Analysis

4.T.RA.1.c:	Consider and integrate information from research, including relevant and accurate evidence from two or more credible sources. Use basic parenthetical citations (AuthorLastName) to credit the source used.

Practices Domain

Collaboration & Presentation (CP)

K-12.P.CP.1.d:	Work with others to discuss topics, investigate questions, solve problems, and explore and create texts.

Quarter 3 *Cumulative review of skills from quarters 1 and 2 will continue as new skills are introduced.*

Foundations Domain

Review and continue skills from quarters 1 and 2.

Language Domain

Grammar, Usage, and Mechanics

3-5.L.GC.1:
- 1.28 Form and use comparative and superlative adjectives and adverbs.
- 1.29 Ensure pronoun-antecedent agreement.
- 1.38 Use indefinite pronouns, ensuring correct agreement.
- 1.42 Use intensive pronouns.
- 1.43 Form and use the progressive, perfect, and perfect progressive verb aspects.
- 1.44 Form and use participles.
- 1.45 Recognize and correct vague pronoun references.

Syntax

4.L.GC.2.d: Elaborate on ideas and information, using adjectives and adverbs when incorporating details and descriptions to convey precise meaning and engage audiences.

Vocabulary

4.L.V.3.b: Demonstrate understanding of words by relating them to their synonyms, antonyms, homophones, and homographs.

4.L.V.3.c: Distinguish shades of meaning among closely related adverbs (e.g., quickly, swiftly, rapidly).

4.L.V.3.d: Use print and digital reference materials (e.g., dictionaries, glossaries, thesauruses) to check spelling and determine or clarify the precise meaning of words and phrases.

Texts Domain

Context

4.T.C.2.a: Compare and contrast the perspectives of different narrators or speakers in a text.

Structures & Style

4.T.SS.1.c Use conjunctions and transition words or phrases, including similarly and in contrast, to show relationships between ideas and information.

4.T.SS.1.d: Craft related sentences into cohesive paragraphs that follow a chosen structure using transitions.

Techniques: Students should be able to flexibly employ all techniques across writing exercises.

4.T.T.1.b:	Describe how the text's protagonist and antagonist function in the plot, drive the conflict, and contribute to the development of other characters.
4.T.T.1.c:	Identify and describe common themes in texts (e.g., good vs. evil) that are revealed through details about characters.
4.T.T.1.d:	Compare and contrast the approach to similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from diverse cultures.
4.T.T.3.a:	Discuss and evaluate techniques used to present and design opinion and argumentative texts, including author's opinion or claim, supporting reasons, and evidence.
4.T.T.3.c:	Apply opinion techniques to create opinion pieces that introduce the topic, state an opinion about the topic, supply reasons and evidence to support the opinion with linking words (e.g., because, therefore, since, for example) to connect the opinion and reasons, and provide a concluding statement or section.
Research & Analysis	
4.T.RA.1.b:	Conduct research by locating, gathering, curating, and integrating information from multiple credible sources, including print, digital, and personal communication, about a self-selected topic.
Practices Domain	
Author's Craft (AC)	
K-12.P.AC.3.d:	Consume and produce multimodal texts, integrating a variety of genres, text features, and craft techniques to influence target audiences and achieve specific purposes.

Quarter 4 *Cumulative review of skills from quarters 1, 2, and 3 will continue as new skills are introduced.*

Foundations Domain

Review and continue skills from quarters 1, 2, and 3.

Language Domain

Grammar, Usage, and Mechanics

3-5.L.GC.1:
- 1.31 Use relative pronouns and relative adverbs.
- 1.34 Correctly use frequently confused words (e.g., to/too/two; there/their/they're; advice/advise).
- 1.35 Recognize and use conventional capitalization in abbreviations, proper adjectives, and formal titles.
- 1.41 Use conventional capitalization and underlining, quotation marks, or italics to indicate titles of works in text and in a list of works cited.

Syntax

Review and continue skills from quarters 1, 2, and 3.

Vocabulary

4.L.V.3.e: Use knowledge of word relationships and learned vocabulary words and phrases to make precise word choices when speaking and writing.

Texts Domain

Context

Review and continue skills from quarters 1, 2, and 3.

Structures & Style

Review and continue skills from quarters 1, 2, and 3.

Techniques: Students should be able to flexibly employ all techniques across writing exercises.

4.T.T.4.a: Discuss and explain techniques used to present and design different types of poetry, including free verse, rhymed verse, haiku, and limerick.

4.T.T.4.b: Apply poetic techniques to produce poetry and engage audiences that use a predetermined rhyme scheme to achieve an intended effect.

Research & Analysis

4.T.RA.2.b: Determine the credibility and relevance of a source text based on known information about the author and/or organization.

Practices Domain

Collaboration & Presentation (CP)

K-12.P.CP.2.e: Build background knowledge by reciting all or part of significant poems and speeches as appropriate by grade level.

Year Long Mathematical Practices (MP):

Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration, and expression. Seek help and apply feedback. Set and monitor goals.

MP.1 – Make sense of problems and persevere in solving them.

MP.2 – Reason abstractly and quantitatively

MP.3 – Construct viable arguments and critique reasoning of others.

MP.4 – Model with mathematics.

MP.5 – Use appropriate tools strategically.

MP.6 – Attend to precision.

MP.7 – Look for and make use of structure.

MP.8 – Look for and express regularity in repeated reasoning.

Semester 1 (August – December)

Unit 1 – Making Relevant Connections with Place Value Understanding, Addition and Subtraction of Whole Numbers (5 – 6 weeks)

In Unit 1, students continue to develop place value understanding and explore adding, subtracting, and rounding numbers within one million as an extension of their work from third grade. Students will also engage in asking and answering questions in order to solve relevant, authentic problems.

Overarching Standards for Unit 1

NR.1: Recognize patterns within the base-ten place value system with quantities presented in real-life situations up to 1,000,000. Compare and round multi-digit whole numbers through the hundred thousands place.
NR.2: Using part-whole strategies, solve problems involving addition and subtraction through the hundred thousands place.
MDR.6: Solve real-life, mathematical problems and analyze graphical displays of data to answer relevant questions.

Standards for Student Mastery for Unit 1

NR.1.1: Read and write multi-digit whole numbers to the hundred thousands place using base-ten numerals and expanded form.
NR.1.2: Recognize and show that a digit in one place has a value ten times greater than what it represents in the place to its right. Extend this understanding to determine the value of a digit when it is shifted to the left or right, based on the relationship between multiplication and division.

NR.1.3: Use place value reasoning to represent, compare, and order multi-digit whole numbers up to 1,000,000 using >, =, and < symbols to record the results of comparisons.

NR.1.4: Use place value understanding to round multi-digit whole numbers to the nearest thousand, ten thousand, or hundred thousand.

NR.2.1: Add and subtract multi-digit numbers fluently to solve real-life, mathematical problems using place value understanding, properties of operations, and the relationships between operations.
NR.2.5: Solve multi-step problems using addition and subtraction (for this unit) involving whole numbers. Use mental computation and estimation strategies to justify the reasonableness of solutions.
MDR.6.2: Ask questions involving real-life situations with numbers up to 1,000,000 and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.

Unit 2 – Exploring Real-life Phenomena through Patterning & Algebraic Reasoning (3 - 4 weeks)

In this unit, students will build on their understanding of growing and repeating addition, subtraction, multiplication, and division patterns to generate number and shape patterns that follow a rule. Students will also explore factor pairs and prime vs. composite numbers.

Overarching Standards for Unit 2

PAR.3: Generate and analyze patterns, including those involving shapes, input/output diagrams, factors, multiples, prime numbers, and composite numbers.

MDR.6: Solve real-life, mathematical problems and analyze graphical displays of data to answer relevant questions.

Standards for Student Mastery for Unit 2

PAR.3.1: Given a mathematical rule (+, -, x, ÷), create both number and shape patterns that follow the rule.

PAR.3.2: Use input-output rules, tables, and charts to represent and describe patterns, find relationships, and solve problems.

PAR.3.3: Find factor pairs in the range 1–100. Find multiples of single-digit numbers up to 100.

PAR.3.4: Identify composite numbers and prime numbers. Explain the relationship between them.

MDR.6.2: Ask questions, including those about time and interval patterns related to time, and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.

Unit 3– Reasoning about Multiplication & Division, Multi-Step Problems, and Measurement (8 - 9 weeks)

In this unit, students will build on their previous work with multiplication and division within 100 to extend to larger numbers. Students will also solve multi-step real-world problems involving all operations, including those involving money, intervals of time, and metric measurements for liquid volume, distance, and weight.

Overarching Standards for Unit 3

NR.2: Using part-whole strategies, solve problems involving addition and subtraction through the hundred-thousands place, as well as multiplication and division of multi-digit whole numbers presented in real-life, mathematical situations.

MDR.6: Measure time and objects that exist in the world to solve real-life, mathematical problems and analyze graphical displays of data to answer relevant questions.

Standards for Student Mastery for Unit 3

NR.2.2: Use multiplicative comparisons to interpret, model, and solve problems.

NR.2.3: Solve real-life problems involving multiplication of a number with up to four digits by a 1-digit whole number or involving multiplication of two 2-digit numbers using strategies based on place value and the properties of operations. Use equations, rectangular arrays, and/or area models to illustrate and explain the calculation.

NR.2.4: Solve real-life division problems involving up to 4-digit dividends and 1-digit divisors (including whole number quotients with remainders) using strategies based on place-value understanding, properties of operations, and the relationships between operations.

NR.2.5: Solve multi-step problems using addition, subtraction, multiplication, and division involving whole numbers. Use mental computation and estimation strategies to justify the reasonableness of solutions.

MDR.6.1: Use the four operations to solve problems involving elapsed time to the nearest minute, intervals of time, metric measurements of liquid volumes, lengths, distances, and masses of objects. Include problems where measurements are given in a larger unit in terms of a smaller unit, or as a smaller unit in terms of a larger unit.

Semester 2 (January – May)

Unit 4 – Investigating Fractions and Decimals (8 - 9 weeks)

In this unit, students will extend their understanding of unit fractions to understand that all fractions can be composed from and decomposed into unit fractions. Students will add and subtract fractions and mixed numbers with like denominators. Students will also compare fractions less than 1. Students will interpret data and create line plots including adding and subtracting fractions with unlike denominators of 10 and 100. Students will learn that fractions with denominators of 10 and 100 can be written as decimals. Students will also order and compare decimals to the hundredth.

Overarching Standards for Unit 4

NR.4: Solve real-life problems involving addition, subtraction, equivalence, and comparison of fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100 using part-whole strategies and visual models.

NR.5: Solve real-life problems involving addition, equivalence, comparison of fractions with denominators of 10 and 100, and comparison of decimal numbers as tenths and hundredths using part-whole strategies and visual models.

MDR.6: Measure time and objects that exist in the world to solve real-life, mathematical problems and analyze graphical displays of data to answer relevant questions.

Standards for Student Mastery for Unit 4

NR.4.1: Using concrete materials, drawings, and number lines, demonstrate and explain the relationship between equivalent fractions, including fractions greater than one. Explain the identity property of multiplication as it relates to equivalent fractions. Generate equivalent fractions using these relationships.

NR.4.2: 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.

NR.4.3: Compare two fractions with different numerators and/or different denominators by using a variety of tools and strategies. Recognize that comparisons are valid only when the two fractions refer to the same whole.

NR.4.4: Represent whole numbers and fractions as the sum of unit fractions.

NR.4.5: Write an equation to represent a fraction as a sum of fractions with the same denominator in more than one way.

NR.4.6: Add and subtract fractions and mixed numbers with like denominators using a variety of tools.

NR.5.1: Demonstrate to explain the concept of equivalent fractions with denominators of 10 and 100, using concrete materials and visual models. Add two fractions with denominators of 10 and 100.

NR.5.2: Represent, read, and write fractions with denominators of 10 or 100 as a decimal. Represent decimal numbers to the hundredths place as fractions, using concrete materials and drawings.

NR.5.3: Compare two decimal numbers to the hundredths place by reasoning about their size. Record the results of comparisons with the symbols >, =, or <.

MDR.6.1: Use the four operations to solve problems involving elapsed time to the nearest minute, intervals of time, metric measurements of liquid volumes, lengths, distances, and masses of objects. Include problems involving fractions with like denominators (2, 3, 4, 5, 6, 8, 10, 12, 100) and problems where measurements are given in a larger unit in terms of a smaller unit, or as a smaller unit in terms of a larger unit.

MDR.6.2: Ask questions and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.

MDR.6.3: Create dot plots to display a distribution of numerical (quantitative) measurement data.

Unit 5 – Building Conceptual Understanding of Angle Measurement (3 - 4 weeks)

In this unit, students will be introduced to the concept of degrees by exploring using a 360° protractor. They will extend their measurement reasoning to explore angles as an attribute of shapes. Students will build conceptual understanding of angle measurements to make sense of real-world scenarios.

Overarching Standards for Unit 5

GSR.7: Investigate the concepts of angles and angle measurement to estimate and measure angles.

Standards for Student Mastery for Unit 5

GSR.7.1: Recognize angles as geometric shapes formed when two rays share a common endpoint. Draw right, acute, and obtuse angles.

GSR.7.2: Measure angles in reference to a circle with the center at the common endpoint of two rays. Determine an angle's measure in relation to the 360 degrees in a circle through division or as a missing factor problem.

Unit 6 – Reasoning with Shapes (4 - 5 weeks)

In this unit, students will draw and work with basic geometric elements such as points, lines, line segments, rays, and angles, as well as parallel and perpendicular lines. They will identify and classify these attributes in two-dimensional figures and compare shapes based on the presence or absence of these characteristics. Students will also investigate and draw lines of symmetry in two-dimensional figures. Finally, students will solve problems involving area and perimeter of composite figures.

Overarching Standards for Unit 6

GSR.8: Identify and draw geometric objects, classify polygons based on properties, and solve problems involving area and perimeter of rectangular figures.

Standards for Student Mastery for Unit 6

GSR.8.1: Explore, investigate, and draw points, lines, line segments, rays, angles (right, acute, obtuse), perpendicular lines, parallel lines, and lines of symmetry. Identify these in two-dimensional figures.

GSR.8.2: Classify, compare, and contrast polygons based on lines of symmetry, the presence or absence of parallel or perpendicular line segments, or the presence or absence of angles of a specified size and based on side lengths.

GSR.8.3: Solve problems involving area and perimeter of composite rectangles involving whole numbers.

Unit 7 – Culminating Task (1 – 2 weeks)

The culminating task allows students to apply content learned in previous units throughout the school year while engaging in open-ended, inquiry-based learning. This task should invite students to investigate a real-world mathematical problem using the Mathematical Modeling Framework and/or the Framework for Statistical Reasoning. Students will demonstrate deep understanding of the standards by creating a presentation, report, or demonstration that answers an overarching driving question.

Overarching Standards for Unit 7

NR.1: Recognize patterns within the base-ten place value system with quantities presented in real-life situations up to 1,000,000. Compare and round multi-digit whole numbers through the hundred thousands place.

NR.2: Using part-whole strategies, solve problems involving addition and subtraction through the hundred thousands place, as well as multiplication and division of multi-digit whole numbers presented in real-life, mathematical situations.

NR.4: Solve real-life problems involving addition, subtraction, equivalence, and comparison of fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100 using part-whole strategies and visual models.

NR.5: Solve real-life problems involving addition, equivalence, comparison of fractions with denominators of 10 and 100, and comparison of decimal numbers as tenths and hundredths using part-whole strategies and visual models.

MDR.6: Measure time and objects that exist in the world to solve real-life, mathematical problems and analyze graphical displays of data to answer relevant questions.

PAR.3: Generate and analyze patterns, including those involving shapes, input/output diagrams, factors, multiples, prime numbers, and composite numbers.

GSR.7: Investigate the concepts of angles and angle measurement to estimate and measure angles.

GSR.8: Identify and draw geometric objects, classify polygons based on properties, and solve problems involving area and perimeter of rectangular figures.

Standards for Student Mastery for Unit 7

ALL associated learning objectives.

4th Grade
Social Studies

United States History – Revolution to Reconstruction

In fourth grade, students continue with year two of a three-year study of United States history in which all four strands (history, geography, civics/government, and economics) are integrated. Students begin the year learning about the French and Indian War and end with the Reconstruction period. The geography strand emphasizes the influence of geography on U.S. history during these same time periods. In the civics/government strand, students learn about concepts and rights contained within our founding documents. The economic strand uses material from the history strand to deepen understanding of economic concepts.

Social Studies standards integrate the three dimensions of **Information Processing Skills (ISPs)**, **Map and Globe Skills (MGSs)**, and **Disciplinary Domains (DDs)** to provide a comprehensive framework that emphasizes active engagement, interdisciplinary connections, and K-12 Connecting Themes and Enduring Understandings. Together, they show how social studies standards engage *students* in obtaining, evaluating, and communicating information.

Information Processing Skills	Map and Globe Skills	Disciplinary Domains
IPS. 1: **Compare** similarities and differences (A)	**MGS.1:** Introduce the use of a compass rose to successfully identify cardinal directions (north, south, east, west). (A)	Historical Understandings (H)
IPS. 2: **Organize** items chronologically (A)	**MGS.2:** Introduce the use of intermediate directions when describing location (northeast, southeast, northwest, southwest). (A)	
IPS.3: **Identify** issues and/or problems and alternative solutions (D)	**MGS.3:** Use a letter/number grid system to determine location. (A)	Geographic Understandings (G)
IPS.4: Distinguish between facts and opinion. (A)	**MGS.4:** Compare and contrast the categories of natural, cultural, and political features on a map. (A)	
IPS.5: Identify main idea, detail, sequence of events, and cause and effect in a social studies context. (M)	**MGS.5:** Use graphic scales to determine distances on a map. (I)	
IPS.6: Identify and use primary and secondary sources. (M)	**MGS.6:** Use a map key/legend to acquire information from historical, physical, political, resource, product, and economic maps. (M)	

IPS.7: Interpret timelines, charts, and tables. (M)	**MGS.7:** Use a map to explain the impact of geography on historical and current events. (M)	Government/Civic Understandings (CG)
IPS.8: Identify social studies reference resources to use for a specific purpose. (A)	**MGS.8:** Draw conclusions and make generalizations based on information from maps. (M)	
IPS.9: Construct charts and tables. (A)	**MGS.9:** Use latitude and longitude to determine location. (D)	
IPS.10: Analyze artifacts. (D)		
IPS.11: Draw conclusions and make generalizations. (M)		
IPS.12: Analyze graphs and diagrams. (D)		
IPS.13: Translate dates into centuries, eras, or ages. (D)	**MGS.10:** Compare maps of the same place at different points in time and from different perspectives to determine changes, identify trends, and generalize about human activities. (I)	Economic Understandings (E)
IPS.14: Formulate appropriate research questions. (I)	**MGS.11:** Compare maps with data sets (charts, tables, graphs) and/or readings to draw conclusions and make generalizations. (I)	
IPS.15: Determine adequacy and/or relevancy of information. (I)		
IPS.16: Check for consistency of information. (I)		
IPS.17: Interpret political cartoons. (I)		

The goal of the **Information Processing Skills (IPS)** is for a student to be able to locate, analyze, and synthesize information related to social studies topics and apply this information to solve problems and/or make decisions. Students are working to master these skills over multiple grade levels. **Map and Globe Skills (MGS)** are the expected skills that a student should successfully use to retrieve social studies information from maps. The expected level of mastery for IPS and MGS are indicated by one of the following letters in parentheses: Introduced (I), Developing (D), Mastery (M), and Application (A). **Disciplinary Domains** are the four areas of fundamental concepts that students need to understand to develop a deep knowledge of social studies.

Semester 1 (August – December)

Unit 1 – Connecting Themes & Geography/Map Skills (3 weeks)

G1: Locate important physical and man-made features in the United States.

CG2: Explain the importance of freedoms guaranteed by the First Amendment to the U.S. Constitution.

G1.a: Locate major physical features of the United States: the Atlantic Coastal Plain, the Great Plains, the Continental Divide, the Gulf of Mexico, the Mississippi River, and the Great Lakes.

G1.b: Locate major man-made features of the United States: New York City, NY; Boston, MA; Philadelphia, PA; Washington, D.C.; Gettysburg, PA; and the Erie Canal.

MGS.3: Use a letter/number grid system to determine location.

MGS.6: Use a map key/legend to acquire information from historical, physical, political, resource, product, and economic maps.

MGS.9: Use latitude and longitude to determine location.

MGS.10: Compare maps of the same place at different points in time and from different perspectives to determine changes, identify trends, and generalize about human activities.

Unit 2 – American Revolution (8 weeks)

H1: **Explain the causes, events, and results of the American Revolution.**

H1.a: Trace the events that shaped the revolutionary movement in America: French and Indian War, 1765 Stamp Act, the slogan “no taxation without representation,” the activities of the Sons of Liberty, the activities of the Daughters of Liberty, Boston Massacre, and the Boston Tea Party.

H1.b: Describe the influence of key individuals and groups during the American Revolution: King George III, George Washington, Benjamin Franklin, Thomas Jefferson, Benedict Arnold, Patrick Henry, John Adams, Paul Revere, and Black regiments.

H1.c: Describe the major events of the American Revolution and explain the factors leading to American victory and British defeat; include the Battles of Lexington and Concord, Saratoga, and Yorktown.

H1.d: Explain the writing of the Declaration of Independence; include who wrote it, how it was written, why it was necessary, and how it was a response to tyranny and the abuse of power.

E1.e: Describe how trade promotes economic activity (e.g., trade between the U.S. and Europe).

G1.b: Locate major man-made features of the United States: New York City, NY; Boston, MA; Philadelphia, PA; Washington, D.C.; Gettysburg, PA; and the Erie Canal.

G2.a: Explain how each force (American and British) attempted to use the physical geography of each battle site (Lexington and Concord, Saratoga, and Yorktown) to its benefit.

CG1.a: Describe the meaning of Natural rights as found in the Declaration of Independence (the right to life, liberty, and the pursuit of happiness).

MGS.3: Use a letter/number grid system to determine location.

MGS.6: Use a map key/legend to acquire information from historical, physical, political, resource, product, and economic maps.

MGS.9: Use latitude and longitude to determine location.

MGS.7: Use a map to explain the impact of geography on historical and current events.

MGS.8: Draw conclusions and make generalizations based on information from maps.

Unit 3 – Government – (7 weeks)

H2: **Analyze the challenges faced by the framers of the Constitution.**

H2.b: Evaluate the major issues debated at the Constitutional Convention: the weaknesses of the Articles of Confederation, the rights of states to govern themselves (federal system), the Great Compromise, and slavery (Three-Fifths Compromise).

H.2.a: Identify the major leaders of the Constitutional Convention (James Madison, George Washington, and Benjamin Franklin).

CG1.b: Describe the meaning of "We the People" from the Preamble to the U.S. Constitution as a reflection of consent of the governed or popular sovereignty.

CG1.c: Describe the meaning of the federal system of government in the U.S. (federal powers, state powers, and shared powers).

CG1.d: Describe the meaning of representative democracy/republic.

CG2: Explain the importance of freedoms guaranteed by the First Amendment to the U.S. Constitution.

CG3.a: Describe how the three branches of government interact with each other (checks and balances and separation of powers), and how they relate to local, state, and federal government.

CG3.b: Identify and explain the rights in the Bill of Rights, describe how the Bill of Rights places limits on the powers of government, and explain the reasons for its inclusion in the Constitution in 1791.

Semester 2 (January – May)

Unit 4 – Westward Expansion (6 weeks)

H3: Explain westward expansion in America.

H3.c: Describe territorial expansion with emphasis on the Louisiana Purchase, the Lewis and Clark expedition, and the acquisitions of Texas (the Alamo and independence), Oregon (Oregon Trail), and California (Gold Rush and the development of mining towns).

H3.a: Describe the causes and events of the War of 1812; include the burning of the Capitol and the White House and the writing of "The Star Spangled Banner."

H3.b: Describe the impact of westward expansion on American Indians; include the Trail of Tears, Battle of Little Bighorn and the forced relocation of American Indians to reservations.

E1.a: Describe opportunity cost and its relationship to decision-making across time (e.g., decisions to settle in the west).

E1.d: Explain how voluntary exchange helps both buyers and sellers (e.g., Gold Rush mining towns).

E1.f: Give examples of technological advancements and their impact on business productivity during the development of the United States (e.g., cotton gin, steamboat, steam locomotive, and telegraph).

G1.a: Locate major physical features of the United States: the Atlantic Coastal Plain, the Great Plains, the Continental Divide, the Gulf of Mexico, the Mississippi River, and the Great Lakes.

G2.b: Describe physical barriers that hindered and physical gateways that benefited territorial expansion from 1801 to 1861.

MGS.3: Use a letter/number grid system to determine location.

MGS.6: Use a map key/legend to acquire information from historical, physical, political, resource, product, and economic maps.

MGS.9: Use latitude and longitude to determine location.

MGS.10: Compare maps of the same place at different points in time and from different perspectives to determine changes, identify trends, and generalize about human activities.

MGS.7: Use a map to explain the impact of geography on historical and current events.

MGS.8: Draw conclusions and make generalizations based on information from maps.

MGS.11: Compare maps with data sets (charts, tables, graphs) and/or readings to draw conclusions and make generalizations.

Unit 5– Civil War (6 weeks)

H5: Explain the causes, major events, and consequences of the Civil War.

H5.b: Discuss how the issues of states' rights and slavery increased tensions between the North and South.

H5.e: Describe the effects of war on the North and South.

H4: Examine the main ideas of the abolitionist and suffrage movements.

H4.a: Discuss contributions of and challenges faced by Susan B. Anthony, Frederick Douglass, Elizabeth Cady Stanton, Sojourner Truth, and Harriet Tubman.

E1.b: Explain how price incentives affect people's behavior and choices: decisions about what crops (e.g., cotton, and tobacco) to grow and products (e.g., textiles) to produce.

E1.c: Describe how specialization improves standards of living (e.g., differences in the economies in the North and South).

H5.a: Identify Uncle Tom's Cabin and John Brown's raid on Harper's Ferry and explain how each of these events was related to the Civil War.

H5.c: Identify major battles, campaigns, and events: Fort Sumter, Gettysburg, the Atlanta Campaign, Sherman's March to the Sea, and Appomattox Court House.

H5.d: Describe the roles of Abraham Lincoln, Robert E. Lee, Ulysses S. Grant, Jefferson Davis, Thomas "Stonewall" Jackson, and William T. Sherman.

G1.b: Locate major man-made features of the United States: New York City, NY; Boston, MA; Philadelphia, PA; Washington, D.C.; Gettysburg, PA; and the Erie Canal.

MGS.3: Use a letter/number grid system to determine location.

MGS.6: Use a map key/legend to acquire information from historical, physical, political, resource, product, and economic maps.

MGS.9: Use latitude and longitude to determine location.

MGS.10: Compare maps of the same place at different points in time and from different perspectives to determine changes, identify trends, and generalize about human activities.

Unit 6 – Reconstruction (5 weeks)

H6: Analyze the effects of Reconstruction on American life.

H6.a: Describe the purpose of the 13th, 14th, and 15th Amendments.

H6.d: Describe the effects of Jim Crow laws and practices.

H6.b: Explain the work of the Bureau of Refugees, Freedmen, and Abandoned Lands (Freedmen's Bureau).

H6.c: Explain how slavery was replaced by sharecropping and how freed African Americans or Blacks were prevented from exercising their newly won rights.

E1.c: Describe how specialization improves standards of living (e.g., differences in the economies in the North and South).

Unit 7 – Personal Budgeting (1 week)

E2: Identify the elements of a personal budget (income, expenditures, and saving) and explain why personal spending and saving decisions are important.

- Explain that a personal budget includes income, expenditures (purchases), and savings.
- Describe the importance of planned spending and saving decisions using a determined budget (income and expenditures in a set time period).

4th Grade
Science

Course Description

The Fourth Grade Cherokee Teaching & Learning Standards for Science engage students in constructing meaningful models that allow them to gain understanding of the natural world. They speculate about observations they make. They add, subtract, multiply and divide whole numbers on paper, mentally, and with calculators. Fourth graders gather and interpret data and use records, tables, or graphs to identify patterns of change. They write instructions and make sketches that allow others to carry out a scientific investigation. They determine whether a comparison is fair if conditions are different for each thing being compared. They question claims or statements made by people outside their field of expertise. The students will use these skills to compare and contrast the physical attributes of stars and planets, model the effects of the relative motion of the Earth and moon around the sun, use weather charts/maps to predict weather events, conduct investigations about the water cycle and understand their relationship with heat energy, communicate information about the nature of light and sound, study the effects of balanced and unbalanced forces on an object, and describe the flow of energy in an ecosystem and the roles organisms play in a community.

Science standards integrate the three dimensions of **Science and Engineering Practices (SEPs)**, **Crosscutting Concepts (CCCs)**, and **Disciplinary Core Ideas (DCIs)** to provide a comprehensive framework that emphasizes active engagement, interdisciplinary connections, and core scientific principles. Together, they show how science standards engage *students* in obtaining, evaluating, and communicating information.

<table>
<tr><th>Science and Engineering Practices</th><th>Crosscutting Concepts</th><th>Disciplinary Core Ideas</th></tr>
<tr><td>Asking Questions (Science) and Defining Problems (Engineering)</td><td rowspan="2">Patterns</td><td rowspan="2">Engineering, Technology, and the Application of Science (TLS)</td></tr>
<tr><td>Developing and Using Models</td><td>Cause and Effect: Mechanism and Explanation</td></tr>
<tr><td>Planning and Carrying Out Investigations</td><td>Scale, Proportion, and Quantity</td><td rowspan="2">Physical Science (P)</td></tr>
<tr><td>Analyzing and Interpreting Data</td><td>Systems and System Models</td></tr>
<tr><td>Mathematics and Computational Thinking</td><td rowspan="2">Energy and Matter: Flows, Cycles, and Conservation</td><td rowspan="2">Life Science (L)</td></tr>
<tr><td>Constructing Explanations (Science) and Designing Solutions (Engineering)</td></tr>
<tr><td>Engaging in Argument from Evidence</td><td>Structure and Function</td><td rowspan="2">Earth and Space Science (E)</td></tr>
<tr><td>Obtaining, Evaluating, and Communicating Information</td><td>Stability and Change</td></tr>
</table>

4th Grade
Science

Science and Engineering Practices are fundamental approaches that scientists and engineers use to investigate the natural world and solve practical problems. **Crosscutting Concepts** in science are overarching themes that bridge various disciplines, helping students and researchers see connections and deepen their understanding of the natural world. **Disciplinary Core Ideas** are fundamental concepts that students need to understand to develop a deep knowledge of science across various disciplines.

Semester 1 (August – December)

Unit 0: Thinking Like a Scientist (1 week)

This unit aims to immerse fourth-grade students in the process of scientific inquiry, focusing on developing intermediate scientific thinking skills. Students will learn to design experiments, analyze data, and draw evidence-based conclusions. Throughout the unit, students will use more complex scientific vocabulary, formulate hypotheses, conduct controlled experiments, utilize a range of tools and technology to gather and analyze data, and effectively communicate their results and conclusions. Thinking Like a Scientist standards should continue to be embedded and developed throughout the course across the entire school year.

Overarching Standard for Unit 0

TLS3-5: Develop intermediate scientific thinking skills by designing experiments, analyzing data, and drawing evidence-based conclusions (e.g., engineering design process, problem-solving process, design challenges, etc.).

Supporting Standards for Student Mastery in Unit 0

TLS3-5.a: Use more complex scientific vocabulary such as data, claim, hypothesis, evidence, analyze, reasoning, variables, and justification.

TLS3-5.b: Formulate hypotheses and conduct controlled experiments.

TLS3-5.c: Use a range of tools and technology to gather, measure, explain, and analyze data. Read and interpret data in a graph to answer questions about totals and simple comparisons.

- Use of metric units begins in 4th grade.

TLS3-5.d: Collaborate and communicate results and conclusions effectively, using various formats (e.g., reports, presentations, argument boards).

Unit 1: Ecosystems (6 weeks)

In this unit, students will model ecosystem roles and energy flow, design scenarios to investigate ecosystem changes, and use data to analyze and predict energy flow changes. Students will investigate ecosystem dynamics and examine the impact of changes to energy flow within an ecosystem.

Overarching Standard for Unit 1

4L1: Obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem.

4L1.d: Use printed and digital data to develop a model illustrating and describing changes to the flow of energy in an ecosystem when plant animals become scarce, extinct, or overabundant.

Supporting Standards for Student Mastery in Unit 1

4L1.a: Develop a model to describe the roles of producers, consumers, and decomposers in a community.

(*Clarification statement*: Students are not expected to identify the different types of consumers – herbivores, carnivores, omnivores, and scavengers.)

4L1.b: Develop simple models to illustrate the flow of energy through a food web/food chain beginning with sunlight and including producers, consumers, and decomposers.

4L1.c: Design a scenario to demonstrate the effect of a change on an ecosystem.

(*Clarification statement*: Include living and non-living factors in the scenario.)

Unit 2A: Weather: Water Cycle (4 weeks)

In this unit, students will plan and conduct investigations to observe state changes in water and understand the energy involved in different pathways water may take during the water cycle.

Overarching Standard for Unit 2A

4E3: Obtain, evaluate, and communicate information to demonstrate the water cycle.

4E3.b: Develop models to illustrate multiple pathways water may take during the water cycle (evaporation, condensation, and precipitation).

(*Clarification statement*: Students should understand that the water cycle does not follow a single pathway.)

Supporting Standards for Student Mastery in Unit 2A

4E3.a: Plan and carry out investigations to observe the flow of energy in water as it changes states from solid (ice) to liquid (water) to gas (water vapor) and changes from gas to liquid to solid.

Unit 2B: Weather: Predicting Weather (5 weeks)

In this unit, students will interpret data and construct explanations from weather observations to make informed weather predictions. Students will explore cause and effect relationships to understand how weather instruments and data influence forecasting and differentiating between weather and climate.

Overarching Standard for Unit 2B

4E4: Obtain, evaluate, and communicate information to predict weather events and infer weather patterns using weather charts/maps and collected weather data.

4E4.d: Construct an explanation based on research to communicate the difference between weather and climate.

Supporting Standards for Student Mastery in Unit 2B

4E4.a: Construct an explanation of how weather instruments (thermometer, rain gauge, barometer, wind vane, and anemometer) are used in gathering weather data and making forecasts.

4E4.b: Interpret data from weather maps/charts, including fronts (warm, cold, and stationary), temperature, pressure, and precipitation to make an informed prediction about tomorrow's weather.

4E4.c: Ask questions and use observations of cloud types (cirrus, stratus, and cumulus) and data of weather conditions to predict weather events.

Unit 3A: Space: Stars and Planets (2 weeks)

In this unit, students will explore technological advances in astronomy, constructing arguments based on evidence, explaining scientific concepts, and evaluating models of the solar system. Students will emphasize scale, proportion, and quantity in understanding the relative sizes and distances of celestial objects and recognize why stars appear different in brightness and size.

Overarching Standard for Unit 3A

4E1: Obtain, evaluate, and communicate information to compare and contrast the physical attributes of stars and planets.

4E1.c: Construct an explanation of the differences between stars and planets.

- Explain the composition (rocky vs. gaseous) of planets and the sun.

Supporting Standards for Student Mastery in Unit 3A

4E1.a: Ask questions to compare and contrast technological advances that have changed the amount and type of information on distant objects in the sky.

4E1.b: Construct an argument on why some stars (including the Earth's sun) appear to be larger or brighter than others. (*Clarification statement*: Differences are limited to distance and size, not age or stage of evolution.)

4E1.d: Evaluate strengths and limitations of models of our solar system in describing relative size, order, appearance and composition of planets and the sun.

(*Clarification statement*: Composition of planets is limited to rocky vs. gaseous.)

Semester 2 (January – May)

Unit 3A: Space: Stars and Planets (3 weeks)

In this unit, students will explore technological advances in astronomy, constructing arguments based on evidence, explaining scientific concepts, and evaluating models of the solar system. Students will emphasize scale, proportion, and quantity in understanding the relative sizes and distances of celestial objects and recognize why stars appear different in brightness and size.

Overarching Standard for Unit 3A

4E1: Obtain, evaluate, and communicate information to compare and contrast the physical attributes of stars and planets.

4E1.c: Construct an explanation of the differences between stars and planets.

- Explain the composition (rocky vs. gaseous) of planets and the sun.

Supporting Standards for Student Mastery in Unit 3A

4E1.a: Ask questions to compare and contrast technological advances that have changed the amount and type of information on distant objects in the sky.

4E1.b: Construct an argument on why some stars (including the Earth's sun) appear to be larger or brighter than others. (*Clarification statement*: Differences are limited to distance and size, not age or stage of evolution.)

4E1.d: Evaluate strengths and limitations of models of our solar system in describing relative size, order, appearance and composition of planets and the sun.

(*Clarification statement*: Composition of planets is limited to rocky vs. gaseous.)

Unit 3B: Space: Earth's Movement (4 weeks)

In this unit, students will observe and explore the patterns in repeating phases of the moon and also the changing length of day and night during different times of the year. Students will explain how the Earth's tilt and orbit result in seasonal changes.

Overarching Standard for Unit 3B

4E2: Obtain, evaluate, and communicate information to model the effects of the position and motion of the Earth and the moon in relation to the sun as observed from the Earth.

4E2.c: Construct an explanation of how the Earth's orbit, with its consistent tilt, affects seasonal changes

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Supporting Standards for Student Mastery in Unit 3B

4E2.a: Develop a model to support an explanation of why the length of day and night change throughout the year.

4E2.b: Develop a model based on observations to describe the repeating pattern of the phases of the moon (new, crescent, quarter, gibbous, and full).

(*Clarification statement*: Emphasis should not be placed on waxing and waning at this level. Crescent refers to the phases where the moon is less than half illuminated; Gibbous refers to the phases where the moon is more than half illuminated.)

Unit 4: Light and Sound (5 weeks)

In this unit, students will carry out multiple investigations to explore the nature of light and sound, and their interactions with objects. Students will understand how light interacts with materials and how sound is produced and altered. Principles of energy and matter will be used when exploring the properties of light (reflection and refraction) and sound to design a communication device.

Overarching Standards for Unit 4

4P1: Obtain, evaluate, and communicate information about the nature of light and how light interacts with objects.

4P1.a: Plan and carry out investigations to observe and record how light interacts with various materials to classify them as opaque, transparent, or translucent.

4P2: Obtain, evaluate, and communicate information about how sound is produced and changed and how sound and/or light can be used to communicate

4P2.b: Design and construct a device to communicate across a distance using light and/or sound.

Supporting Standards for Student Mastery in Unit 4

4P1.b: Plan and carry out investigations to describe the path light travels from a light source to a mirror and how it is reflected by the mirror using different angles.

4P1.c: Plan and carry out an investigation utilizing everyday materials to explore examples of when light is refracted.

(*Clarification statement*: Everyday materials could include prisms, eyeglasses, and a glass of water.)

4P2.a: Plan and carry out an investigation utilizing everyday objects to produce sound and predict the effects of changing the strength or speed of vibrations.

Unit 5: Force and Motion (6 weeks)

In this unit, students will plan and conduct investigations to understand how forces affect the motion of objects. Students will explore how simple machines work and alter forces. Concepts of stability and change will be tested when students analyze the conditions under which forces are balanced or unbalanced.

Overarching Standard for Unit 5

4P3: Obtain, evaluate, and communicate information about the relationship between balanced and unbalanced forces.

4P3.a: Plan and carry out ~~an~~ investigations on the effects of balanced and unbalanced forces on an object and communicate the results.

Supporting Standards for Student Mastery in Unit 5

4P3.b: Construct an argument to support the claim that gravitational force affects the motion of an object.

- Demonstrate how forces like gravity and friction affect the motion of an object.

4P3.c: Ask questions to identify and explain the uses of simple machines (lever, pulley, wedge, inclined plane, wheel and axle, and screw) and how forces are changed when simple machines are used to complete tasks.

(*Clarification statement*: The use of mathematical formulas is not expected.)