**SCIENCE**

**Strand H: The Nature of Science**

**Standard 1:** The student uses the scientific processes and habits of mind to solve problems.

**Benchmarks**
- SC.H.1.1.1 The student knows that in order to learn, it is important to observe the same things often and compare them.
- SC.H.1.1.3 The student knows that in doing science, it is often helpful to work with a team and to share findings with others.
- SC.H.1.2.1 The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments.
- SC.H.1.2.2 The student knows that a successful method to explore the natural world is to observe and record and then analyze and communicate the results.
- SC.H.1.2.3 The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions.
- SC.H.1.2.4 The student knows that to compare and contrast observations and results is an essential skill in science.
- SC.H.1.2.5 The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing.

**Standard 3:** The student understands that science, technology, and society are interwoven and interdependent.

**Benchmarks**
- SC.H.3.1.1 The student knows that scientists and technologists use a variety of tools (e.g., thermometers, magnifiers, rulers, and scales) to obtain information in more detail and to make work easier.
- SC.H.3.2.2 The student knows that data are collected and interpreted in order to explain an event or concept.
Strand A: Number Sense, Concepts, and Operations

Standard 1: The student understands the different ways numbers are represented and used in the real world.

Benchmarks
MA.A.1.1.1 The student associates verbal names, written word names, and standard numerals with the whole numbers less than 1000.
MA.A.1.1.2 The student understands the relative size of whole numbers between 0 and 1000.
MA.A.1.1.3 The student uses objects to represent whole numbers or commonly used fractions and relates these numbers to real-world situations.
MA.A.1.1.4 The student understands that whole numbers can be represented in a variety of equivalent forms.

Standard 2: The student understands number systems.

Benchmark
MA.A.2.1.2 The student uses number patterns and the relationships among counting, grouping, and place value strategies to demonstrate an understanding of the whole number system.

Standard 3: The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving.

Benchmarks
MA.A.3.1.1 The student understands and explains the effects of addition and subtraction on whole numbers, including the inverse (opposite) relationship of the two operations.
MA.A.3.1.2 The student selects the appropriate operation to solve specific problems involving addition and subtraction of whole numbers.

Standard 4: The student uses estimation in problem solving and computation.

Benchmark
MA.A.4.1.1 The student provides and justifies estimates for real-world quantities.

Strand B: Measurement

Standard 1: The student measures quantities in the real world and uses the measures to solve problems.

Benchmarks
MA.B.1.1.1 The student uses and describes basic measurement concepts including length, weight, digital and analog time, temperature, and capacity.
MA.B.1.1.2 The student uses standard customary and metric (centimeter, inch) and nonstandard units, such as links or blocks, in measuring real quantities.
MA.B.1.2.1 The student uses concrete and graphic models to develop procedures for solving problems related to measurement including length, weight, time, temperature, perimeter, area, volume, and angle.
MA.B.1.2.2 The student solves real-world problems involving length, weight, perimeter, area, capacity, volume, time, temperature, and angles.
Standard 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary).

**Benchmarks**
- MA.B.2.1.1 The student uses direct (measured) and indirect (not measured) comparisons to order objects according to some measurable characteristics (length, weight).
- MA.B.2.2.1 The student uses direct (measured) and indirect (not measured) measures to calculate and compare measurable characteristics.

Standard 3: The student estimates measurements in real-world problem situations.

**Benchmark**
- MA.B.3.2.1 The student solves real-world problems involving estimates of measurements, including length, time, weight, temperature, money, perimeter, area, and volume.

Standard 4: The student selects and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations.

**Benchmarks**
- MA.B.4.2.1 The student determines which units of measurement, such as seconds, square inches, dollars per tankful, to use with answers to real-world problems.
- MA.B.4.2.2 The student selects and uses appropriate instruments and technology, including scales, rulers, thermometers, measuring cups, protractors, and gauges, to measure in real-world situations.

**Strand C: Geometry and Spatial Sense**

**Standard 1:** The student describes, draws, identifies, and analyzes two- and three-dimensional shapes.

**Benchmarks**
- MA.C.1.1.1 The student understands and describes the characteristics of basic two- and three-dimensional shapes.
- MA.C.1.2.1 The student given a verbal description, draws and/or models two- and three-dimensional shapes and uses appropriate geometric vocabulary to write a description of a figure or a picture composed of geometric figures.

**Standard 2:** The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed.

**Benchmarks**
- MA.C.2.1.1 The student understands basic concepts of spatial relationships, symmetry, and reflections.
- MA.C.2.1.2 The student uses objects to perform geometric transformations, including flips, slides, and turns.
- MA.C.2.2.1 The student understands the concepts of spatial relationships, symmetry, reflections, congruency, and similarity.
- MA.C.2.2.2 The student predicts, illustrates, and verifies which figures could result from a flip, slide, or turn of a given figure.

**Standard 3:** The student uses coordinate geometry to locate objects in both two- and three-dimensions and to describe objects algebraically.

**Benchmarks**
MA.C.3.1.1 The student uses real-life experiences and physical materials to describe, classify, compare, and sort geometric figures, including squares, rectangles, triangles, circles, cubes, rectangular solids, spheres, pyramids, cylinders, and prisms, according to the number of faces, edges, bases, and corners.

MA.C.3.1.2 The student plots and identifies positive whole numbers on a number line.

MA.C.3.2.1 The student represents and applies a variety of strategies and geometric properties and formulas for two- and three-dimensional shapes to solve real-world and mathematical problems.

MA.C.3.2.2 The student identifies and plots positive ordered pairs (whole numbers) in a rectangular coordinate system (graph).

**Strand D: Algebraic Thinking**

**Standard 1: The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions.**

**Benchmarks**

MA.D.1.1.1 The student describes a wide variety of classification schemes and patterns related to physical characteristics and sensory attributes, such as rhythm, sound, shapes, colors, numbers, similar objects, similar events.

MA.D.1.1.2 The student recognizes, extends, generalizes, and creates a wide variety of patterns and relationships using symbols and objects.

MA.D.1.2.1 The student describes a wide variety of patterns and relationships through models, such as manipulatives, tables, graphs, rules using algebraic symbols.

MA.D.2.2.2 The student uses informal methods, such as physical models and graphs to solve real-world problems involving equations and inequalities.

**Strand E: Data Analysis and Probability**

**Standard 1: The student understands and uses the tools of data analysis for managing information.**

**Benchmarks**

MA.E.1.1.1 The student displays solutions to problems by generating, collecting, organizing, and analyzing data using simple graphs and charts.

MA.E.1.1.2 The student displays data in a simple model to use the concepts of range, median, and mode.

MA.E.1.1.3 The student analyzes real-world data by surveying a sample space and predicting the generalization onto a larger population through the use of appropriate technology, including calculators and computers.

MA.E.1.2.1 The student solves problems by generating, collecting, organizing, displaying, and analyzing data using histograms, bar graphs, circle graphs, line graphs, pictographs, and charts.

**Standard 2: The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.**

**Benchmark:**

MA.E.2.1.1 The student understands basic concepts of chance and probability.

MA.E.2.1.2 The student predicts which simple event is more likely, equally likely, or less likely to occur.

**Standard 3: The student uses statistical methods to make inferences and valid argument about real-world situations.**

**Benchmark**

MA.E. 3.1.1 The student designs a simple experiment to answer a class question, collects appropriate information, and interprets the results using graphical displays of information, such as line graphs, pictographs, and charts.
MA.E.3.1.2 The student decides what information is appropriate and how data can be collected, displayed, and interpreted to answer relevant questions.

MA.E.3.2.1 The student designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, mean, median, and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs.
Strand A: Reading

Standard 1: The student uses the reading process effectively.

Benchmarks
LA.A.1.1.1  The student predicts what a passage is about based on its title and illustrations.
LA.A.1.1.3  The student uses knowledge of appropriate grade-, age-, and developmental-level vocabulary in reading.
LA.A.1.1.4  The student increases comprehension by rereading, retelling, and discussion.

Standard 2: The student constructs meaning from a wide range of texts.

Benchmarks
LA.A.2.1.2  The student selects material to read for pleasure.
LA.A.2.1.3  The student reads for information to use in performing a task and learning a new task.
LA.A.2.1.4  The student knows strategies to use to discover whether information presented in a text is true, including asking others and checking another source.
LA.A.2.1.5  The student uses simple materials of the reference system to obtain information.
LA.A.2.2.5  The student reads and organizes information for a variety of purposes, including making a report, conducting interviews, taking a test, and performing an authentic task.

Strand B: Writing

Standard 1: The student uses writing processes effectively.

Benchmark
LA.B.1.2.1  The student prepares for writing by recording thoughts, focusing on a central idea, grouping related ideas, and identifying the purpose for writing.

Standard 2: The student writes to communicate ideas and information effectively.

Benchmarks
LA.B.2.2.1  The student writes notes, comments, and observations that reflect comprehension of content and experiences from a variety of media.
LA.B.2.2.5  The student creates narratives in which ideas, details, and events are in logical order and are relevant to the story line.

Strand C: Listening, Viewing, and Speaking

Standard 1: The student uses listening strategies effectively.

Benchmarks
LA.C.1.1.1  The student listens for a variety of informational purposes, including curiosity, pleasure, getting directions, performing tasks, solving problems, and following rules.
LA.C.1.1.3  The student carries on a conversation with another person, seeking answers and further explanations of the other’s ideas through questioning and answering.
LA.C.1.1.4  The student retells specific details of information heard, including sequence of events.

Standard 3: The student uses speaking strategies effectively.
**Benchmarks**
LA.C.3.1.1 The student speaks clearly and at a volume audible in large- or small-group settings.
LA.C.3.1.2 The student asks questions to seek answers and further explanation of other people’s ideas.
LA.C.3.2.2 The student asks questions and makes comments and observations to clarify understanding of content, processes, and experiences.
LA.C.3.2.5 The student participates as a contributor and occasionally acts as a leader in a group discussion.

**Strand E: Literature**

**Standard 1: The student understands the common features of a variety of literary forms.**

**Benchmarks**
LA.E.1.2.1 The student identifies the distinguishing features among fiction, drama, and poetry and identifies the major characteristics of nonfiction.
LA.E.1.2.2 The student understands the development of plot and how conflicts are resolved in a story.

**Standard 2: The student responds critically to fiction, nonfiction, poetry, and drama.**

**Benchmarks**
LA.E.2.2.2 The student recognizes and explains the effects of language, such as sensory words, rhymes, and choice of vocabulary and story structure, such as patterns, used in children’s texts.
LA.E.2.2.3 The student responds to a work of literature by explaining how the motives of the characters or the causes of events compare with those in his or her own life.
LA.E.2.2.4 The student forms his or her own ideas about what has been read in a literary text and uses specific information from the text to support these ideas.
LA.E.2.2.5 The student identifies the major theme in a story or nonfiction text.