

5th Grade Science



Prioritized Standards and Instructional Units 2022-2023

5th Grade Science

UNIT 1: Earth's Systems 25 Days	UNIT 2: Matter and Energy in Organisms and Ecosystems 25 Days
<p style="text-align: center;"><u>PRIORITY</u></p> <p style="text-align: center;"><u>Science and Engineering Practices</u></p> <p>Developing and Using Models</p> <ul style="list-style-type: none">• Develop a model using an example to describe a scientific principle. (5-ESS2-1) <p>Using Mathematics and Computational Thinking</p> <ul style="list-style-type: none">• Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2- 2) <p>Obtaining, Evaluating, and Communicating Information</p> <ul style="list-style-type: none">• Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1) <p style="text-align: center;"><u>SUPPORTING</u></p> <p style="text-align: center;"><u>Performance Expectations</u></p> <p>5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</p> <p>5-ESS2-2. Describe and graph the amounts of saltwater and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.</p> <p>5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.</p>	<p style="text-align: center;"><u>PRIORITY</u></p> <p style="text-align: center;"><u>Science and Engineering Practices</u></p> <p>Developing and Using Models</p> <ul style="list-style-type: none">• Use models to describe phenomena. (5- PS3-1)• Develop a model to describe phenomena. (5-LS2-1) <p>Engaging in Argument from Evidence</p> <ul style="list-style-type: none">• Support an argument with evidence, data, or a model. (5-LS1-1) <p style="text-align: center;"><u>SUPPORTING</u></p> <p style="text-align: center;"><u>Performance Expectations</u></p> <p>5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.</p> <p>5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.</p> <p>5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.</p>

5th Grade Science

UNIT 3: Space System: Stars and the Solar System 25 Days	UNIT 4: Structure and the Properties of Matter 25 Days
<p style="text-align: center;"><u>PRIORITY</u></p> <p style="text-align: center;"><u>Science and Engineering Practices</u></p> <p>Analyzing and Interpreting Data</p> <ul style="list-style-type: none">• Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5- ESS1-2) <p>Engaging in Argument from Evidence</p> <ul style="list-style-type: none">• Support an argument with evidence, data, or a model. (5-PS2-1),(5-ESS1-1) <p style="text-align: center;"><u>SUPPORTING</u></p> <p style="text-align: center;"><u>Performance Expectations</u></p> <p>5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.</p> <p>5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.</p> <p>5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.</p>	<p style="text-align: center;"><u>PRIORITY</u></p> <p style="text-align: center;"><u>Science and Engineering Practices</u></p> <p>Developing and Using Models</p> <ul style="list-style-type: none">• Develop a model to describe phenomena. (5-PS1-1) <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none">• Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4)• Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (5-PS1-3) <p>Using Mathematics and Computational Thinking</p> <ul style="list-style-type: none">• Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2) <p style="text-align: center;"><u>SUPPORTING</u></p> <p style="text-align: center;"><u>Performance Expectations</u></p> <p>5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.</p> <p>5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.</p> <p>5-PS1-3. Make observations and measurements to identify materials based on their properties.</p> <p>5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.</p>

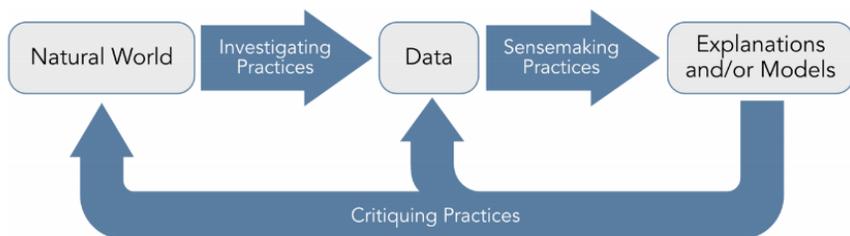
Unit/Core Idea: Structure and Properties of Matter

Pacing: 25 days

Unit/Core Idea: Structure and Properties of Matter
Essential Question: How can one explain the structure, properties, and interactions of matter?

Supporting Questions:

- How do particles combine to form the variety of matter one observes?
- How do substances combine or change (react) to make new substances? -How does one characterize and explain these reactions and predictions about them?



	Investigating Practices	Sensemaking Practices	Critiquing Practices
	1. Asking questions	2. Developing and using models	7. Engaging in argument from evidence
Science Practices	3. Planning and carrying out investigations	4. Analyzing and interpreting data	8. Obtaining, evaluating, and communication information
	5. Using mathematical and computational thinking	6. Constructing explanations	

Science and Engineering Practices (Priority)

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

- Develop a model to describe phenomena. (5-PS1-1)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

- Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4)
- Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (5-PS1-3)

Using Mathematics and Computational Thinking

Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of

Performance Expectations (Supporting)

5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. [Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.] [Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.]

5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.]

5-PS1-3. Make observations and measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.] [Assessment Boundary: Assessment does not include density or distinguishing mass and weight.]

physical properties and using computation and mathematics to analyze data and compare alternative design solutions.

- Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2)

5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Kentucky Academic Standard Connections

ELA/Literacy –

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS1-1)

W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (5-PS1-2),(5-PS1-3),(5-PS1-4)

W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-PS1-2),(5-PS1-3),(5-PS1-4)

W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (5-PS1-2),(5-PS1-3),(5-PS1-4)

Mathematics –

MP.2 Reason abstractly and quantitatively. (5-PS1-1),(5-PS1-2),(5-PS1-3)

MP.4 Model with mathematics. (5-PS1-1),(5-PS1-2),(5-PS1-3)

MP.5 Use appropriate tools strategically. (5-PS1-2),(5-PS1-3)

5.NBT.A.1 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5-PS1-1)

5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (5-PS1-1)

5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems. (5-PS1-2)

5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. (5-PS1-1)

5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft., and improvised units. (5-PS1-1)