5th Grade Science

BOONE COUNTY SCHOOLS

ACHIEVING EXCELLENCE TOGETHER

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
PRIORITY **Science and Engineering Practices** **Developing and Using Models** ● Develop a model using an example to describe a scientific principle. (5-ESS2-1) **Using Mathematics and Computational Thinking** ● Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2- 2) **Obtaining, Evaluating, and Communicating Information** ● Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1) **SUPPORTING** **Performance Expectations** **5-ESS2-1.** Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. **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. **5-ESS3-1.** Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	**PRIORITY** **Science and Engineering Practices** **Developing and Using Models** ● Use models to describe phenomena. (5- PS3-1) ● Develop a model to describe phenomena. (5-LS2-1) **Engaging in Argument from Evidence** ● Support an argument with evidence, data, or a model. (5-LS1-1) **SUPPORTING** **Performance Expectations** **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. **5-LS1-1.** Support an argument that plants get the materials they need for growth chiefly from air and water. **5-LS2-1.** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

5th Grade Science

UNIT 3: Space System: Stars and the Solar System 25 Days	UNIT 4: Structure and the Properties of Matter 25 Days
PRIORITY **Science and Engineering Practices** **Analyzing and Interpreting Data** ● Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5- ESS1-2) **Engaging in Argument from Evidence** ● Support an argument with evidence, data, or a model. (5-PS2-1),(5-ESS1-1) **SUPPORTING** **Performance Expectations** **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. **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. **5-PS2-1.** Support an argument that the gravitational force exerted by Earth on objects is directed down.	**PRIORITY** **Science and Engineering Practices** **Developing and Using Models** ● Develop a model to describe phenomena. (5-PS1-1) **Planning and Carrying Out Investigations** ● 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** ● Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2) **SUPPORTING** **Performance Expectations** **5-PS1-1.** Develop a model to describe that matter is made of particles too small to be seen. **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. **5-PS1-3.** Make observations and measurements to identify materials based on their properties. **5-PS1-4.** Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Unit/Core Idea: Space Systems: Stars and the Solar System   Pacing: 25 days

Unit/Core Idea: Space Systems: Stars and the Solar System
Essential Question: How do lengths and directions of shadows or relative lengths of day and night change from day to day, and how does the appearance of some stars change in different seasons?

Supporting Questions:
-What is the universe and what goes on in stars?
-What are the predictable patterns caused by Earth's movement in the solar system?
-How objects fall down regardless of location on Earth?
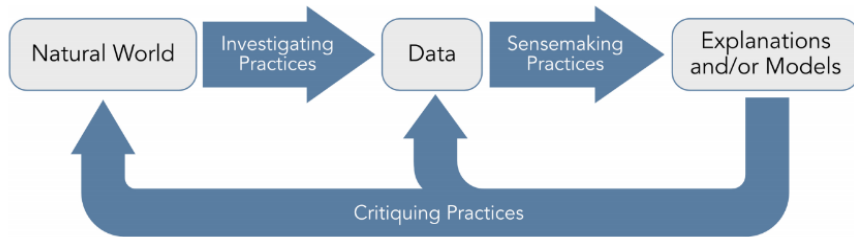
Science Practices	Investigating Practices	Sensemaking Practices	Critiquing Practices
	1. Asking questions	2. Developing and using models	7. Engaging in argument from evidence
	3. Planning and carrying out investigations	4. Analyzing and interpreting data	8. Obtaining, evaluating, and communication information
	5. Using mathematical and computational thinking	6. Constructing explanations	

Science and Engineering Practices (Priority)	Performance Expectations (Supporting)
Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. ● Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5- ESS1-2)	**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.** [Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).] **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**

Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). ● Support an argument with evidence, data, or a model. (5-PS2-1),(5-ESS1-1)	**seasonal appearance of some stars in the night sky.** [Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.] [Assessment Boundary: Assessment does not include causes of seasons.] **5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.** [Clarification Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.] [Assessment Boundary: Assessment does not include mathematical representation of gravitational force.]

Kentucky Academic Standards Connections	**ELA/Literacy –** RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-PS2-1),(5-ESS1-1) 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-ESS1-1) RI.5.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). (5-ESS1-1) RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-PS2-1),(5-ESS1-1) W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-PS2-1),(5-ESS1-1) SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-ESS1-2) **Mathematics –** MP.2 Reason abstractly and quantitatively. (5-ESS1-1),(5-ESS1-2) MP.4 Model with mathematics. (5-ESS1-1),(5-ESS1-2) 5.NBT.A.2 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-ESS1-1) 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS1-2)