



## **Science Grade 6**

***2024 Data Review Report***

Data Recognition Corporation and the South Carolina Department of Education Office of Assessment and Standards convened a committee of content experts to review item-level data from the Spring 2024 SC READY Grade 6 Field Test. The committee analyzed and discussed the items and the data. The committee acknowledged the demanding work of South Carolina educators and offered these relevant and useful instructional strategies.

The Data Review Committee was also mindful that the *South Carolina College- and Career-Ready Science Standards 2021* were fully implemented for the first time in the 2023–2024 school year. These strategies reflect the higher rigor of the new standards.

### General Instructional Strategies

- Provide students opportunities to make claims and use evidence from data to support their claims. Practice written explanations as well as discussions—allow students to be challenged by their peers and engage in argument using evidence.
- Ask students to make inferences based on reading passages.
- Expose students to a variety of diagrams, charts, and models. Students should be able to:
  - Explain the relationship among the components of the model.
  - Evaluate and revise models that better support the intent of the model.
  - Generate and peer-evaluate models.
- Reinforce the scientific terminology and concepts as students can use and apply these to communicate and demonstrate their knowledge.
- Expose student to graphs and model how to:
  - Identify trends,
  - Explain relationships among variables,
  - Summarize the data,
  - Use the data as evidence to refute or support an argument/claim.
  - Students should be constructing and interpreting multiple line graphs to communicate data.
- Reinforce the identification of cause and effect.
- Require students to complete graphs and data tables with missing information.
- Provide opportunities for students to design their own investigations.
  - State the claim/hypothesis/prediction.
  - Identify variables.
  - Determine what evidence is needed to make a conclusion.
  - Explain how the dependent variable will be measured.
  - Make a conclusion whether the claim/hypothesis/prediction was supported or refuted.
  - Discuss possible errors that could have caused the claim/ hypothesis/ prediction to not be refuted.
- Provide frequent practice using claim, evidence, reasoning. Reinforce skills in chains of reasoning, especially with more complex observations.
- Strengthen and reinforce students' skills in the use and interpretation of maps (e.g., weather, world) in the collection of data/information.

**Focused Strategies**

Provide opportunities for students to do the following.

**6-PS1-4, 6-PS3-4**

- Become familiar with models of particle motion.
  - The lines between particles represent vibrations.
  - The arrows indicate greater motion.
- Create models of particles in the three states of matter.
- Understand the difference between thermal energy and heat.
- Understand the relationship between kinetic energy, particle motion, and temperature.
- Investigate what happens when thermal energy is added and subtracted from, for example, water.
- Investigate the relationship of how different amounts of water affect the transfer of thermal energy.

**6-PS4-2**

- Differentiate between electromagnetic and mechanical waves.
- Understand that the behaviors of waves are absorption, refraction, and reflection.
- Create ray diagrams showing the behavior of light interacting with different media.

**6-LS1-1**

- Understand that the cell theory explains that all living things are composed of one or more cells and the terms unicellular and multicellular.
- Compare animal and plant cells.

**6-LS1-8**

- Create models of receptors and the responses to stimuli and explain the relationship among the components of the model.

**6-ESS2-1**

- Use a variety of rock cycle models (components in various positions) to understand the pathways and the processes within the pathways that rocks undergo to change.
  - Develop, evaluate, and revise rock cycle models and explain the pathways that change rock from one type to another.
  - Set up stations so that students can move through each pathway in the cycle.
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**6-ESS2-2**

- Investigate using analogues of geologic processes that can change Earth's surface (e.g., dropping objects in sand to model impact craters, allowing water to drip on a piece of chalk).

**6-ESS2-3**

- Use maps that show plate boundaries to provide evidence of plate movement over time.
- Develop, evaluate, and revise models of plate movement.

**6-ESS2-4**

- Use a variety of water cycle models (components in various positions) to understand the stages of water and the effects of the Sun's energy and Earth's gravity on the movement of water.
  - Develop, evaluate, and revise water cycle models to best explain how the Sun's energy and gravity affect the movement of water.
  - Set up stations so that students can move through each pathways and the processes that affect water during the cycle.

**6-ESS2-5, 6-ESS2-6**

- Follow the weather throughout the year and discuss observations.
- Understand the difference between weather and climate.
- Pay attention to weather patterns when warm or cold air masses or fronts approach and pass over a location.
- Practice predicting the weather based on data.
- Be familiar with, and how to use, the symbols and directions indicated on weather maps.
- Understand how global wind patterns and landforms affect the movement of weather across the United States.