



**Science
Grades 4 and 6**

**Test Data
Review Report
2023**

Introduction

On October 23, 2023, Data Recognition Corporation (DRC) and the South Carolina Department of Education (SCDE) Office of Assessment and Standards (OAS) convened a panel of educators to review item data from the SC READY science assessments. The panel discussed and analyzed items from the 2023 assessment. The panel recognized the hard work of South Carolina educators and offered these relevant and useful instructional strategies as an addendum to those from previous years.

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

General Instructional Strategies

- Utilize an integrated approach to learning; implement claim-evidence-reasoning strategies in cross-curricular contexts.
- Provide hands-on learning opportunities and use real-world examples when possible.
- Model how students design and ask questions, and how to set up their own lab investigations.
- Explain what it means to investigate and use information to design a model.
- Develop and use models; provide opportunities for students to develop their own models to explain phenomena.
- Ask students to conduct investigations and use the results to design a model or describe a relationship.
- Have students compare designs and/or models and evaluate for effectiveness or how to improve the design and/or model.
- Use real-life tools to make observations and collect data. Introduce scientific terminology and use it consistently.
- Provide information in various forms; have students analyze and interpret textual data, numerical data, and infographics to establish relationships, patterns, and trends, and to develop conclusions.
- Incorporate varied question types that include text, infographics, and data. Include relevant reading passages including supporting graphics (e.g., graphs, maps, models, etc.) to build reading stamina.
- Prompt students to discern and explain what makes a particular response or approach to a design or problem correct or incorrect.
- Practice skills for breaking down text content (in paragraph form) to discern data and present it in different formats (e.g., tables, graphs, flowcharts, etc.).

The panelists also discussed targeted instructional strategies for each grade level:

Grade 4

- Focus on the metric system for science.
- Provide students practice collecting and using real-world data that support claims and arguments.
- Introduce scientific terminology through the lens of discovery and ensure students understand it. Integrate terminology into explanations and diagrams rather than using it in isolated contexts.
- Provide opportunities for students to use and apply the correct terminology to scientific contexts.
- Allow students to explore light behavior and the effects different materials have on the visibility of objects.
- Require students to create visual representations for collected data using scientific conventions. Use different types of graphs and show examples of graphing different types of data.
- Practice prediction skills.

Grade 6

- Differentiate dependent variables, independent variables, and controlled variables.
- Model how to break down data into a table; have students practice collecting, interpreting, and organizing data.
- Require students to work collaboratively to develop a device or solution that keeps something warm or cold, given specific constraints. Follow up this activity by asking questions:
 - 1) Did you create a device or solution that accomplished the goal?
 - 2) Did it work?
 - 3) What would improve the device or solution?
- Have students develop, use, and analyze different types of water cycle models.
- Increase opportunities for students to use and analyze different types of maps to identify patterns in data.
- Provide opportunities for students to model the role of cell organelles in photosynthesis and cellular respiration, emphasizing how these processes maintain the cell as a whole.