## Grade 5 Constructed Response Overview

The table below is intended as a resource for teachers to use when looking to assess student science writing outside of the science notebook. For each course, two opportunities have been highlighted as a potential for formally assessing student writing. The goal of this assessment is to evaluate students going through the Strategic Research Framework and developing a written constructed response. As students engage in the resources listed below, they will be expected to read with the specific purpose given, collect evidence related to that purpose, and then write a constructed response which answers the question. These questions are a combination of Investigation Focus Questions, Purposes for Reading, and Response Sheet prompts which are accompanied with a variety of resources (i.e. print, multimedia, student collected data) for the students to access and use when developing their response. While the ultimate goal is for students to complete this process independently, you may choose to provide different levels of scaffolding along the way. For example, to start the year you may work on reading with a purpose and collecting evidence together as a whole class and students write their constructed response independently. Or, there may be a small group of students in your class who needs more direct teacher support to go through the research and writing process while the rest of your class works independently. This table is meant to be used flexibly in order to meet the specific needs of your students. If you are interested in possible rubrics used to score students’ responses, check out the information following the table. As always your feedback on this resource is greatly appreciated. Reach out to the GEMS-Net team and let us know what’s working well and what challenges you are continuing to face.

<table>
<thead>
<tr>
<th>Course</th>
<th>Investigation</th>
<th>Purpose</th>
<th>Collections / Resources</th>
<th>Standards Assessed</th>
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<tbody>
<tr>
<td>Earth and Sun (Fall Trimester)</td>
<td>Inv 1.2</td>
<td>What can be learned by studying the length and direction of shadows?</td>
<td>Student data collected from Inv 1.2 “The Sun and Seasons” section from the “Changing Shadows” article Earth and Sun Science Resources Book (SRB) “Shadow Tracker” multimedia simulation</td>
<td><strong>CCSS ELA</strong>&lt;br&gt;Ri.5.1; Ri.5.3; Ri.5.7; Ri.5.9; Ri.5.10 / W.5.2; W.5.4; W.5.8; W.5.9</td>
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<td></td>
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<td>(Focus Question)</td>
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<td><strong>NGSS</strong> Disciplinary Core Ideas&lt;br&gt;ESS1.B</td>
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<td><strong>Crosscutting Concepts</strong>&lt;br&gt;Patterns / Cause and Effect</td>
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<td><strong>Practices</strong>&lt;br&gt;Analyzing and Interpreting Data / Constructing Explanations / Obtaining, Evaluating, and Communicating Information</td>
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| Earth and Sun  (Fall Trimester) | Inv 4.4 | What is the best design for a solar water heater?  
(Focus Question) | Student data collected from Inv 4.4  
“Heating it Up” section from the “Uneven Heating” article (*Earth and Sun SRB*)  
“Solar Water Heaters” section from the “Solar Technology” article (*Earth and Sun SRB*) | **CCSS ELA**  
RI.5.1; RI.5.3; RI.5.7; RI.5.9; RI.5.10 / W.5.1; W.5.4; W.5.9  
**NGSS**  
Disciplinary Core Ideas  
Crosscutting Concepts;  
Energy and Matter / Systems and System Models  
Practices  
Planning and Carrying Out Investigations / Analyzing and Interpreting Data / Engaging in Argument from Evidence / Obtaining, Evaluating, and Communicating Information |
|---|---|---|---|---|
| Mixtures and Solutions  (Winter Trimester) | Inv 1.2 | Claim: When salt dissolves in water the salt is gone because you can’t see it.  
Do you agree or disagree?  
(Purpose for Reading) | Student data collected from Inv 1.2  
“Conservation of Matter” section from the “Taking Mixtures Apart” article (*Mixtures and Solutions SRB*) | **CCSS ELA**  
RI.5.1; RI.5.3; RI.5.7; RI.5.9; RI.5.10 / W.5.1; W.5.4; W.5.9  
**NGSS**  
Disciplinary Core Ideas  
PS1.A  
Crosscutting Concepts  
Energy and Matter / Stability and Change  
Practices  
Analyzing and Interpreting Data / Using Mathematics and Computational Thinking / Engaging in Argument from Evidence / Obtaining, Evaluating, and Communicating Information |
| Mixtures and Solutions  (Winter Trimester) | Inv 3.4 | What was the most important thing Dr. Keeling discovered and why was his discovery so important?  
(Purpose for Reading) | “Carbon Dioxide Concentration in the Air” article (*Mixtures and Solutions SRB*)  
Climate Change Video | **CCSS ELA**  
RI.5.1; RI.5.3; RI.5.7; RI.5.9; RI.5.10 / W.5.2; W.5.4; W.5.8; W.5.9  
**NGSS**  
Disciplinary Core Ideas  
ESS3.C  
Crosscutting Concepts  
Cause and Effect / Stability and Change  
Practices  
Constructing Explanations / Obtaining, Evaluating, and Communicating Information |
| Living Systems (Spring Trimester) | Inv 1.3 | How does a marine kelp forest function as a system? | Student data collected from Inv 1.3 “Monterey Bay National Marine Sanctuary” article (Living Systems SRB) 
*Web of Life Video* (Chapters 1 & 2 ONLY - stop video at 4:30) | CCSS ELA RI.5.1; RI.5.3; RI.5.7; RI.5.9; RI.5.10 / W.5.2; W.5.4; W.5.8; W.5.9 
NGSS 
Crosscutting Concepts 
Systems and System Models / Energy and Matter 
Practices 
Developing and Using Models / Constructing Explanations / Obtaining, Evaluating, and Communicating Information |
| Living Systems (Spring Trimester) | Inv 3.2 | Compare the vascular system of a plant to the circulatory system of a human. How are they alike and how are they different? | “Comparing Plants and Animals” section from “Plant Vascular Systems” article (Living Systems SRB) 
“Mammalian Circulatory System” multimedia animation 
“Plant Vascular System” multimedia animation | CCSS ELA RI.5.1; RI.5.3; RI.5.7; RI.5.9; RI.5.10 / W.5.2; W.5.4; W.5.8; W.5.9 
NGSS 
Disciplinary Core Ideas LS1.C 
Crosscutting Concepts 
Systems and System Models / Scale, Proportion, and Quantity 
Practices 
Developing and Using Models / Constructing Explanations / Obtaining, Evaluating, and Communicating Information |

**Science Writing: Constructed Response Rubric**

*Note: The following resources were referenced when developing the rubric above: Grades 4-5 (July 2015) PARCC Scoring Rubric for Prose Constructed Response Items; Delaware Informative Writing Rubric; Delaware Opinion Writing Rubric. While the Delaware Opinion Writing Rubric was used as a reference, there is a discrepancy between the CCSS language it uses and NGSS expectations. Under the CCSS, 5th graders show proficiency by stating an opinion with reasons and information. The CCSS expectation is that students don’t start making claims and supporting them with evidence until 6th grade. Whereas, NGSS asks students to argue a claim with evidence and reasoning starting in Kindergarten. Be mindful of this discrepancy in language and make sure that when we evaluate science writing, we are not assessing students’ opinions, but their ability to argue a claim with evidence.*