## Grade 4 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 and Purposes for Reading 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>
</tr>
</thead>
</table>
| Soils, Rocks, & Landforms     | Inv 1.1       | What is soil? (Focus Question) | Student data collected from Inv 1.1  
“What is soil?” article from the Soils, Rocks, and Landforms Science Resources Book (SRB) | CCSS ELA  
RI.4.1; RI.4.3; RI.4.9; RI.4.10 / W.4.2; W.4.4; W.4.9  
NGSS  
Disciplinary Core Ideas  
ESS2.A  
Crosscutting Concepts  
Structure and Function  
Practices  
Analyzing and Interpreting Data / Constructing Explanations / Obtaining, Evaluating, and Communicating Information |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Inv</th>
<th>Question/Activity</th>
<th>Video/Resource</th>
<th>CCSS ELA / NGSS</th>
</tr>
</thead>
</table>
| Soils, Rocks, & Landforms (Fall Trimester) | Inv 2.4 | How do fossils get in rocks and what can they tell us about the past? (Focus Question) | Student fossil model from Inv 2.4  
“Fossils Found” and “The Fossil Record” sections of the “Fossils Tell a Story” article (Soils, Rocks, and Landforms SRB)  
[Fossils video](#): Chapter 2: 1:41 - 4:00  
Chapter 6: 17:16 - 20:18 | RI.4.1; RI.4.3; RI.4.7; RI.4.10 / W.4.2; W.4.4; W.4.8; W.4.9  
**NGSS Disciplinary Core Ideas**  
ESS1-1  
**Crosscutting Concepts**  
System and System Models  
**Practices**  
Developing and Using Models / Constructing Explanations / Obtaining, Evaluating, and Communicating Information |
| Energy (Winter Trimester)                | Inv 2.2 (Demonstration 1) | What causes the paperclip to float in the air? (Purpose for Reading) | “How Magnets Stick to Iron” section with accompanying picture from the “When Magnet Meets Magnet” article (Energy SRB)  
[All About Magnets Video](#) (Chapter 3 ONLY)  
[“Magnetic Field” Tutorial](#) (STOP when you come to the vocabulary review) | RI.4.1; RI.4.3; RI.4.7; RI.4.10 / W.4.2; W.4.4; W.4.8; W.4.9  
**NGSS Disciplinary Core Ideas**  
PS2.B  
**Crosscutting Concepts**  
Cause and Effect  
**Practices**  
Constructing Explanations / Obtaining, Evaluating, and Communicating Information |
| Energy (Winter Trimester)                | Inv 4.3 | What causes change of motion? (Purpose for Reading) | Student data collected from Inv 4.3  
“What causes change of motion?” article (Energy SRB)  
Videos:  
[Wagon](#)  
[Soccer Ball](#)  
[Ball on Table](#) | RI.4.1; RI.4.3; RI.4.7; RI.4.10 / W.4.2; W.4.4; W.4.8; W.4.9  
**NGSS Disciplinary Core Ideas**  
PS2.B / PS3.C  
**Crosscutting Concepts**  
Cause and Effect / Stability and Change  
**Practices**  
Analyzing and Interpreting Data / Constructing Explanations / Obtaining, Evaluating, and Communicating Information |
| Environments (Spring Trimester) | Inv 1.2 | What do you think are the best conditions for an isopod environment?  
(Purpose for Reading) | Student data collected from Inv 1.2  
“Isopods” article (Environments SRB)  
Virtual Terrarium Multimedia (be sure to point out Activity Information button to students) |  
**CCSS ELA**  
RI.4.1; RI.4.3; RI.4.7; RI.4.10 /  
W.4.1; W.4.4; W.4.8; W.4.9  
**NGSS**  
Disciplinary Core Ideas  
LS1 / LS2  
**Crosscutting Concepts**  
Cause and Effect / Stability and Change  
**Practices**  
Planning and Carrying Out Investigations / Analyzing and Interpreting Data / Engaging in Argument from Evidence / Obtaining, Evaluating, and Communicating Information |
| Environments (Spring Trimester) | Inv 3.2 | What do you think is the range of tolerance that brine shrimp eggs have for the environmental factor of salinity (salt)?  
(Purpose for Reading) | Student data collected from Inv 3.2  
“Brine Shrimp” article (Environments SRB) |  
**CCSS ELA**  
RI.4.1; RI.4.3; RI.4.10 /  
W.4.1; W.4.4; W.4.9  
**NGSS**  
Disciplinary Core Ideas  
LS1 / LS4-D  
**Crosscutting Concepts**  
Cause and Effect / Stability and Change  
**Practices**  
Planning and Carrying Out Investigations / Analyzing and Interpreting Data / Engaging in Argument from Evidence / 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, 4th 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.*