**Illinois State Board of Education**
**Grade 7 Science Example**

**General Information**

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| Academic Year | 2014-2015 |
| Educator Name | Example Teacher |
| Course/Subject | Science |
| Grade Level(s) | Grade 7 |
| Interval of Instruction | 9/15/14 - 12/4/15 |

**Timeline**

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| Initial Approval Date | 9/1/14 |
| Midcourse Check-In Date | 11/17/14 |
| Midcourse Check-In Notes: Esther and Joshua were removed from the SLO due to absences exceeding 50% of the first half of the SLO cycle. | |

**Element 1: Learning Goal**

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| ☐ Describe the learning goal. | Students will be able to construct an explanation based on evidence regarding the interaction of Earth's major systems during and at the end of a semester long (10-week) unit of middle school earth science to answer the question "Why are some mountains bigger than others?" |
| ☐ Identify the content standards associated with the learning goal. *Include the text of the content standards.* | **MS-ESS2-2:** Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. [Clarification Statement: Emphasis is on how processes change Earth's surface at time and spatial scales that can be large (such as slow plate motions or the uplift of large mountain ranges) or small (such as rapid landslides or microscopic geochemical reactions), and how many geoscience processes (such as earthquakes, volcanoes, and meteor impacts) usually behave gradually but are punctuated by catastrophic events. Examples of geoscience processes include surface weathering and deposition by the movements of water, ice, and wind. Emphasis is on geoscience processes that shape local geographic features, where appropriate.] |
| ☐ Describe the student population. | The student population includes 30 grade seven students. Five of these students |

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| | have specific learning disabilities in reading, and one student has a specific learning disability in math. Five students are EL students that will need additional language support. One EL student also has a specific learning disability in reading. |
| ☐ Summarize the instructional strategies used to teach the learning goal. | This unit is taught primarily using the model-based reasoning instructional strategy (http://relatingresearchtopractice.org/article/359) in which students learn about a concept, in this case how mountains are formed and shaped over time, by creating a physical model that they then adapt and change over the course of the instructional unit.<br><br>Students are asked to revise (or keep) their model after each instructional piece, and then use it to make a claim, provide evidence that supports their claim, and explain their reasoning to answer some question about a phenomena they were exploring. For this learning goal, students are evaluated using the scientific explanations that they create using their models. |

**Discussion Questions**

- What "big idea" is supported by the learning goal?

  The big idea supported by the learning goal is engaging in argument from evidence. Scientists and engineers use reasoning and argumentation to present new theories, propose explanations of phenomena, present solutions to technological problems, and to provide new interpretations of old data (NRC, 2012, p.73)[1].

- How does the learning goal support students' development of critical thinking, problem solving, and analytical skills?

  Students will need to take what they have learned in class to develop a model that makes sense to them, make a claim about some phenomena in nature and use their model to support their claim with evidence. Finally, they will have to explain their reasoning. All three of these are aspects of critical thinking, problem solving, and scientific analysis.

[1] NRC (National Research Council). (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas.* Washington, DC: The National Academies Press. Available for free download at http://www.nap.edu/catalog/13165/a-framework-for-k-12-science-education-practices-crosscutting-concepts

**Element 2: Assessment**

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| ☐ Describe the assessment and evaluation procedures that measure students' understanding of the learning goal. | Students will be presented with four opportunities throughout the unit to construct and present oral or written scientific explanations to explain some phenomena about the shapes of mountains. Each of these opportunities will be evaluated using a common rubric that was developed by the district's science teachers. Students receive a rating of "Below," "Approaching," "Meeting," or "Exceeding" in each of 3 areas: Claim, Evidence and Reasoning. Science teachers regularly collaborate and practice evaluating student work using the rubric to ensure inter-rater reliability.<br><br>See example Science Assessment: http://www.isbe.state.il.us/assessment/pdfs/bal-asmt/example-asmts/middle-school.pdf<br><br>*Note that this example evaluates student growth for one dimension, the science and engineering practice, of a three dimensional assessment. |
| ☐ Describe how the assessment and evaluation procedures will be differentiated to meet the needs of all students described in the student population. | The following accommodations will be available to students who require them:<br><br>• Extended time to complete their scientific explanation.<br>• The option to present oral or typed explanations rather than written.<br>• Sentence starters and word banks for students.<br>• An organizational chart to develop their scientific explanation. |

**Discussion Questions**

- How often will you collect data to monitor student progress toward this learning goal?

  Student responses will be collected four times throughout the unit.

- How will you use this assessment information to monitor student progress and inform your instruction?

  Using the evaluations of student work collected, I can identify students' strengths and weaknesses and provide appropriate supports.

**Element 3: Growth Targets**

<table>
<tr>
<td>☐ Identify students' baseline data.</td>
<td>Baseline data was established using evidence from two scientific explanation charts completed at the end of grade six and contained in electronic portfolios, as well as one scientific explanation chart from within the first two weeks of school. A brief explanation of the initial student groupings is provided below.<br><br>Exceeding: Students that earned at least 2 "Exceeding" ratings in all 3 baseline tasks. Additionally, students received no rating below "Meeting" on any task.<br><br>Meeting: Students that earned at least 2 "Meets" ratings in all 3 baseline tasks. Additionally, students did not receive a "below" rating on any task.<br><br>Approaching: Students that earned at least 2 "Approaching" ratings in all 3 baseline tasks. Additionally, students did not receive a "below" rating on any task.<br><br>Below: Students that received at least 1 "Below" rating on any task were placed in this category. Below is a summary of the baseline levels:<br><br>
<table>
<tr><th></th><th>Claim</th><th>Evidence</th><th>Reasoning</th></tr>
<tr><td>Below</td><td>6</td><td>4</td><td>5</td></tr>
<tr><td>Approaching</td><td>16</td><td>7</td><td>11</td></tr>
<tr><td>Meeting</td><td>5</td><td>9</td><td>11</td></tr>
<tr><td>Exceeding</td><td>3</td><td>10</td><td>3</td></tr>
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</td>
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| ☐ Using students' baseline data identify appropriate growth targets for your student population. | Below is a summary of the growth targets:<br><br>**Claim** / **Evidence** / **Reasoning**<br>**Below**: 0 / 0 / 5<br>**Approaching**: 6 / 4 / 11<br>**Meeting**: 16 / 7 / 11<br>**Exceeding**: 8 / 19 / 3 |

**Discussion Questions**

- Explain how the growth targets demonstrate ambitious, yet realistic targets, for all students described in the student population.

  Student growth targets were set individually and with the expectation that all students will show at least one level in two of the three areas of the rubric. Reasoning is a skill that often takes multiple years for students to develop. Realistically, we would expect to see consistent growth in Reasoning from year to year, but not necessarily within an individual unit of instruction.

**Element 4: Outcome**

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| ☐ Document the number or percentage of students who achieved their identified growth targets. | Below is a summary of student outcomes: A brief explanation of the groupings is provided:<br><br>Exceeding: Students that earned at least 3 "Exceeding" ratings in the 4 tasks. Additionally, students received no rating below "Meeting" on any task.<br><br>Meeting: Students that earned at least 3 "Meets" ratings in the 4 tasks. Additionally, students did not receive a "below" rating on any task.<br><br>Approaching: Students that earned at least 3 "Approaching" ratings in the 4 tasks. Additionally, students did not receive a "below" rating on any task. |

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| | Below: Students that received at least 1 "Below" rating on Tasks 2, 3, or 4 were placed in this category. "Below" ratings received only on Task 1 did not result in the student being placed in this final category as growth was shown throughout the Unit.<br><br>**Claim** / **Evidence** / **Reasoning**<br>**Met**: 27 / 25 / 28<br>**Did Not Meet**: 1 / 3 / 0 |

**Required for Evaluator**

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| ☐ Explain how the number or percentage of students who met their identified growth targets translates into an appropriate teacher rating. | Ninety five percent of student met their identified growth targets. |

**Element 5: Teacher Rating**

| Unsatisfactory | Needs Improvement | Proficient | Excellent |
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| Less than 25% of Students Met the Indicated Growth Target(s).<br>☐ | 25% - 50% of Students Met the Indicated Growth Target(s).<br>☐ | 51% - 75% of Students Met the Indicated Growth Target(s).<br>☐ | 76% - 100% of Students Met the Indicated Growth Target(s).<br>☒ |
| Date: 12/4/15 | Evaluator Signature: *Example Evaluator* | | |
| Date: 12/4/15 | Teacher Signature: *Example Teacher* | | |