 SCILLSS Classroom Science Assessment Workshop

**HS-ESS2-5 Task Specifications Tool**

| Element | Description |
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| Performance Expectation* Indicate the PE from the instructional sequence to be assessed.
 | **HS-ESS2-5.** Plan and conduct an investigation of the properties of water and their effects on Earth materials, surface processes, and groundwater systems. |
| Knowledge, Skills & Abilities (KSAs) * Develop statements which specify what is expected of students to demonstrate (i.e., knowledge, skills, and abilities) to provide evidence that they have learned one or more aspects of a PE.
 | * **KSA1:** Plan and conduct an investigation of the properties of water and their effects on Earth materials.
* **KSA2:** Plan and conduct an investigation of the properties of water and their effects on surface processes.
* **KSA3:** Plan and conduct an investigation of the properties of water and their effects on groundwater systems.
* **KSA4:** Plan and conduct an investigation of the properties of water to measure the predicted effect of water on Earth’s materials or surface processes.
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| Student Demonstration of Learning* List what students should be able to do to demonstrate that they have met the KSA(s).

Define qualities of student performance that constitute student evidence. | * Describes a phenomenon that includes a connection between the properties of water and its effects on Earth materials and/or surface processes
* Develop an investigation plan and accurately describe the data that will be collected and the evidence to be derived from the data (i.e., properties of water, effect of the properties of water (e.g., energy transfer, mechanical effects, chemical effects)
* Correctly describes how the data collected will be relevant to determining the effect of water on Earth materials and/or surface processes
* Correctly evaluates the accuracy and precision of the collected data
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| Work Product* Determine the “vehicles” (i.e., work products) that are intended to contain observable evidence (e.g., a model, an argument, a description, a graph, a chart).
 | * Record observations
* Organize data in a table and/or graphical display (e.g., chart, graph)
* Summarize data to identify relationships between data sets
* Draw conclusions based on data
* Evaluate whether the data can be used to infer the effect of water on processes in the natural world
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| Element | Description |
| Task Features* List the task features from which the task writer selects to develop an assessment task.
* Reference the “Clarification Statement” in the NGSS for the PE as appropriate.

Note: A single question/task may not represent all the features listed. | * All tasks must prompt students to describe relationships between observed phenomenon or evidence and reasoning underlying the observation/evidence.
* Students use scientific reasoning and process skills.
* All tasks must elicit core ideas as defined in the PE.
* All tasks must include elements from at least two dimensions of the Nebraska College and Career Ready Standards for Science.
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| Aspects of an assessment task that can be varied to shift complexity or focus* Allows for a range of tasks to be developed of varying complexity.
* Allows for development of tasks that focus on various skills related to the PE.

Allows the task developer to match features of the task with the characteristics of students such as their interests, familiarity, and provided instruction. | * Complexity of scientific concept(s) to be investigated
* Data may include graphical displays of:
	+ observations;
	+ measurements;
	+ tables;
	+ graphs; and
	+ diagrams.
* Properties of water may include, but are not limited to:
	+ heat capacity of water;
	+ flowing water;
	+ polarity of water;
	+ ability of water to dissolve materials;
	+ water in chemical reactions; and
	+ the density of water in its solid and liquid states.
* Effects of water on Earth’s materials or surface processes may include, but are not limited to:
	+ water transferring energy;
	+ water transporting and/or depositing materials;
	+ water preventing the movement of materials;
	+ water breaking rock apart as water freezes;
	+ water dissolving and/or recrystallizing materials; and
	+ water decreasing the viscosity of melted rock.
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| Assessment Boundaries* List information that is NOT assessed (i.e., related above grade-level ideas and skills).

Reference the “Assessment Boundary” in the NGSS for the PE as appropriate. | * Tasks should avoid calculating specific heat.
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