SCILLSS Classroom Science Assessment Workshop

**Grade 5 SCILLSS Model Task Specifications Tools**

**Grade 5 SCILLSS Model Task Specifications Tool for 5-PS1-1**

| Element | Description |
| --- | --- |
| Performance Expectation | **5-PS1-1.** Develop a model to describe that matter is made of particles too small to be seen. |
| Knowledge, Skills, & Abilities (KSAs)  | **KSA1:** Develop a model to describe matter.**KSA2:** Use a provided model to describe matter.**KSA3:** Use a provided model todescribe that matter is made of particles too small to be seen.**KSA4:** Develop a model to describe that matter is made of particles too small to be seen. |
| Student Demonstration of Learning | * Model accurately represents the observable phenomena.
* Model accurately captures all mechanistic features of the observable phenomena.
* Scale of model components is relevant to various objects, systems, and processes.
* Model and response accurately describe the particles in the two conditions (i.e., before and after stirring).
* Describes a phenomenon that includes the idea that matter is made of particles too small to be seen.
* Correctly identifies and describes relevant relationships between components of the model.
 |
| Work Product | * Draw a model
* Complete a model
* Constructed-response
 |
| Task Features | * 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 NGSS.
 |
| Aspects of an assessment task that can be varied to shift complexity or focus | * Complexity of scientific concept(s) to be modeled.
* Function of the model:
	+ to explain a mechanism underlying a phenomenon;
	+ to predict future outcomes;
	+ to describe a phenomenon;
	+ to generate data to inform how the world works.
* The degree to which components of the model are provided.
* The model may be provided for revision or one that is created from scratch.
* Representation of model.
* What matter is being modeled.
* Use or purpose of the model.
* Type of model (e.g., physical/virtual).
* What states of matter are represented and/or included (and how many) and if they are compared.
 |
| Assessment Boundaries | * Students are not expected to know that matter is made of atoms and molecules.
* Students are not expected to explain the properties of the particles.
* Students are not expected to apply proportional reasoning skills (Note: should not be included, as students learn proportions in in grade 6, CCSSM[[1]](#footnote-1)).
* Density should not be included.
* Mass and weight are not distinguished.
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## Grade 5 SCILLSS Model Task Specifications Tool for 5-PS1-3

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| Element | Description |
| Performance Expectation | **5-PS1-3.** Make observations and measurements to identify materials based on their properties. |
| Knowledge, Skills, & Abilities (KSAs)  | **KSA1:** Use observations and measurements as evidence to explain the identification of a material.**KSA2:** Use observations of the properties of matter to identify a substance.**KSA3:** Use standard measurements and tools to determine a property of a substance.**KSA4:** Make observations and measurements to identify materials based on their properties. |
| Student Demonstration of Learning | * Make correct calculations.
* Use appropriate units.
* Correct use of quantitative and qualitative data to identify materials based on their properties.
* Complete and appropriate explanation, using evidence, that materials can be identified based on their observable and measurable properties.
* Description of why some properties (e.g., shape) are or are not a characteristic property.
* Use observations to support conclusion, rather than inference.
 |
| Work Product | * Interpretation of data
* Constructed-response
* Selected-response
 |
| Task Features | * All tasks require evidence of qualitative and quantitative thinking.
* All tasks must prompt students to make connections between observed phenomenon or evidence and reasoning underlying the observation/evidence.
* Students use scientific reasoning and process skills in observational (nonexperimental) investigations.
* All tasks must elicit core ideas as defined in the PE.
* All tasks must include elements from at least two dimensions of the NGSS.
 |
| Aspects of an assessment task that can be varied to shift complexity or focus | * Properties presented (e.g., color, conductivity, magnetic, conductors).
* Format of "real-world" phenomenon under investigation: image, data, text, combination.
* Standard units used (e.g., grams, liters).
* Use or purpose of the model.
* Type of model (e.g., physical/virtual).
* What states of matter are represented and/or included (and how many) and if they are compared.
 |
| Assessment Boundaries | * Density should not be included as a property.
* Mass and weight are not distinguished.
* Task may include physical or chemical reactions.
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1. National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common Core State Standards for Mathematics*. Washington DC: Author. [↑](#footnote-ref-1)