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 |
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| 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. | |

## 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)