

2-PS1-1 Matter and Its Interactions

Students who demonstrate understanding can:

- 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.** [Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. 	<p>PS1.A: Structure and Properties of Matter</p> <ul style="list-style-type: none"> Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. 	<p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural and human designed world can be observed.

Observable features of the student performance by the end of the grade:	
1	Identifying the phenomenon under investigation
	a Students identify and describe the phenomenon under investigation, which includes the following idea: different kinds of matter have different properties, and sometimes the same kind of matter has different properties depending on temperature.
	b Students identify and describe the purpose of the investigation, which includes answering a question about the phenomenon under investigation by describing and classifying different kinds of materials by their observable properties.
2	Identifying the evidence to address the purpose of the investigation
	a Students collaboratively develop an investigation plan and describe the evidence that will be collected, including the properties of matter (e.g., color, texture, hardness, flexibility, whether is it a solid or a liquid) of the materials that would allow for classification, and the temperature at which those properties are observed.
	b Students individually describe that: <ul style="list-style-type: none"> i. The observations of the materials provide evidence about the properties of different kinds of materials. ii. Observable patterns in the properties of materials provide evidence to classify the different kinds of materials.
3	Planning the investigation
	a In the collaboratively developed investigation plan, students include: <ul style="list-style-type: none"> i. Which materials will be described and classified (e.g., different kinds of metals, rocks, wood, soil, powders). ii. Which materials will be observed at different temperatures, and how those temperatures will be determined (e.g., using ice to cool and a lamp to warm) and measured (e.g., qualitatively or quantitatively). iii. How the properties of the materials will be determined. iv. How the materials will be classified (i.e., sorted) by the pattern of the properties.
	b Students individually describe how the properties of materials, and the method for classifying them, are relevant to answering the question.
4	Collecting the data
	a According to the developed investigation plan, students collaboratively collect and record data on the properties of the materials.