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. (2-PS1-1)

Different properties are suited to different purposes. (2-PS1-2), (2-PS1-3)

A great variety of objects can be built up from a small set of pieces. (2-PS1-3)
DCI: Matter and Its Interactions

2.PS1.B: Chemical Reactions

Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4)

Performance Expectation

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.

Assessment Boundary: none

Performance Expectation

2.PS1-2: Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.

Assessment Boundary: Assessment of quantitative measurements is limited to length.
Performance Expectation

**2-PS1-3:** Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

**Clarification Statement:** Examples of pieces could include blocks, building bricks, or other assorted small objects.

**Assessment Boundary:** none

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Performance Expectation

**2-PS1-4:** Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

**Clarification Statement:** Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.

**Assessment Boundary:** none

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Science and Engineering Practice

**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.

Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-PS1-1)
Science and Engineering Practice

Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

*Analyze data from tests of an object or tool to determine if it works as intended.* (2-PS1-2)

Science and Engineering Practice

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomenon and designing solutions.

*Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.* (2-PS1-3)

Science and Engineering Practice

Engaging in Argument from Evidence

Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).

**Construct an argument with evidence to support a claim.** (2-PS1-4)
### Crosscutting Concept

**Patterns**

Patterns in the natural and human designed world can be observed. (2-PS1-1)

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**Cause and Effect**

Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2)

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**Cause and Effect**

Events have causes that generate observable patterns. (2-PS1-4)
Crosscutting Concept

**Energy and Matter**

Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3)

Connection to Nature of Science

**Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena**

Science searches for cause and effect relationships to explain natural events. (2-PS1-4)

Connection to Engineering, Technology, and Applications of Science

**Influence of Science, Engineering, and Technology on Society and the Natural World**

Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (2-PS1-2)
**Common Core State Standards for ELA/Literacy**

**Reading Informational Text**

**RI.2.1 - Key Ideas and Details**

Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4)

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**Common Core State Standards for ELA/Literacy**

**Reading Informational Text**

**RI.2.3 - Key Ideas and Details**

Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4)

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**Common Core State Standards for ELA/Literacy**

**Reading Informational Text**

**RI.2.8 - Integration of Knowledge and Ideas**

Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4)
**Card Type name**

**W.2.1 - Text Types and Purposes**

Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4)

**Card Type name**

**W.2.7 - Research to Build and Present Knowledge**

Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3)

**Card Type name**

**W.2.8 - Research to Build and Present Knowledge**

Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3)
Measurement & Data

2.MD.D.10 - Represent and interpret data.

Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)

Mathematical Practices

MP.2 - Reason abstractly and quantitatively

CCSS text (2-PS1-2)

Mathematical Practices

MP.4 - Model with mathematics

CCSS text (2-PS1-1), (2-PS1-2)
Common Core State Standards for Mathematics

Mathematical Practices
MP.5 - Use appropriate tools strategically
CCSS text (2-PS1-2)