

DCI: Matter and Its Interactions

2.PS1.A: Structure and Properties of Matter

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)

DCI: Matter and Its Interactions

2.PS1.A: Structure and Properties of Matter

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

DCI: Matter and Its Interactions

2.PS1.A: Structure and Properties of Matter

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

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

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)

Crosscutting Concept

Cause and Effect

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

Crosscutting Concept

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)

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)

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)

Common Core State Standards for ELA/Literacy

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)

Common Core State Standards for ELA/Literacy

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)

Common Core State Standards for ELA/Literacy

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)

Common Core State Standards for Mathematics

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)

Common Core State Standards for Mathematics

Mathematical Practices

MP.2 - Reason abstractly and quantitatively

CCSS text (2-PS1-2)

Common Core State Standards for Mathematics

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)