Unit 3 - Properties of Matter

Content Area: **Science**
Course(s): **Science 2**
Time Period: **March**
Length: **15 Days**
Status: **Published**

Unit Summary

In this unit of study, students demonstrate an understanding of observable properties of materials through analysis and classification of different materials. The crosscutting concepts of patterns, cause and effect, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Standards

SCI.2.2-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.
SCI.2.2-PS1-4	Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
SCI.K-2.K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
SCI.K-2.K-2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
SCI.K-2.K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
SCI.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.
SCI.2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
TECH.8.1.2.A.CS1	Understand and use technology systems.

Student Learning Objectives

Students will learn...

- how to plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- how to analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- how to analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Essential Questions

- How can we sort objects into groups that have similar patterns?
- Can some materials be a solid or a liquid?

Enduring Understandings

Students will understand that...

- 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.
- different properties are suited to different purposes.
- a great variety of objects can be built up from a small set of pieces.
- there is always more than one possible solution to a problem, it is useful to compare and test designs.
- patterns in the natural and human designed world can be observed.
- simple tests can be designed to gather evidence to support or refute student ideas about causes.
- every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.

Application

Students will independently use their learning to...

- plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
- use their learning to analyze data from tests of an object or tool to determine if it works as intended.