



UNIT 1 – Properties of Matter

LEARNING GOALS

Enduring Understanding(s):

Different types of matter exist and they are categorized by their observable properties.

Many objects are made of smaller pieces.

Heating or cooling may cause changes in materials that are sometimes reversible, and sometimes not.

Essential Question(s):

What are things made of?

How are materials similar and different from one another, and how do the properties of the materials relate to their use?

How can things be changed by heating or cooling?

Content and Skills:

Students will know and be able to:

Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-1.

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

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. 2-PS1-3. [

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

Standards Addressed:

NGSS Disciplinary Core Ideas

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)
- 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)

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)

NGSS Scientific and Engineering Practices

Planning and Carrying Out Investigations
Analyzing and Interpreting Data
Constructing Explanations and Designing Solutions
Engaging in Argument from Evidence

NGSS Crosscutting Concepts

Patterns
Cause and Effect
Energy and Matter

UNIT 2 - Soils and Living Things

In this unit, students investigate different properties of soil and the different components of soils. They will apply their understandings to an analysis of local soils. Students also investigate the relationships among soil, roots, and plants.

LEARNING GOALS

Enduring Understanding(s):

Soils have different components and properties and are vital to supporting life.

Essential Question(s):

Why soils are important to living things?

Content and Skills:

Students will know and be able to:

Use senses and simple tools (e.g., sieves and settlement tests) to separate soil into components such as rock fragments, water, air and plant remains.

Classify soils by properties such as color, particle size (sand, silt or clay), or amount of organic material (loam).

Explain the importance of soil to plants, animals and people.

Evaluate the quality of different soils in terms of observable presence of air, water, living things and plant remains

Conduct fair tests to investigate how different soil types affect plant growth and write conclusions supported by evidence.

Standards Addressed:

Standard 2.3 - Earth materials have varied physical properties that make them useful in different ways.

The Core Scientific Inquiry, Literacy and Numeracy Standards (B. INQ 1-10) are embedded in instruction throughout the unit

UNIT 3 - Growth and Development of Plants and Pollinators

In this unit, students will grow plants from seed in order to study their growth and development. Through hands-on investigations, students are expected to develop an understanding of what plants need to grow and how plants depend on animals for seed dispersal and pollination. Students are also expected to compare the diversity of life in different habitats.

LEARNING GOALS

Enduring Understanding(s):

Plants have specific requirements for survival.

Essential Question(s):

How do plants grow and develop?

How are animals important to plants?

Content and Skills:

Students will know and be able to:

Describe the life cycles of flowering plants as they grow from seeds, proceed through maturation and produce new seeds.

Record observations and make conclusions about the sequence of stages in a flowering plant's life cycle.

Use senses and simple tools to observe and describe the roots, stems, leaves, flowers and seeds of various plants (including trees, vegetables and grass.)

Use magnifiers to observe and diagram the parts of a flower.

Describe the functions of roots, stems, leaves, flowers and seeds in completing a plant's life cycle.

Plan and conduct an investigation to determine if plants need sunlight and water to grow

Develop a model to explain how animals help plants in pollination and seed dispersal

Make observations to compare and contrast the diversity of plants in different habitats

Standards Addressed:

CT Scientific Frameworks:

Standard 2.2 – Plants change their forms as part of their life cycles.

Standard 1.4-The properties of materials and organisms can be described more accurately through the use of standard measuring units.

The Core Scientific Inquiry, Literacy and Numeracy Standards (B. INQ 1-10) are embedded in instruction throughout the unit

NGSS:

Disciplinary Core Ideas

2-LS2-1: Plants depend on water and light to grow.

2-LS2-2: Plants depend on animals for pollination or to move their seeds around.

2-LS4-1: There are many different kinds of living things in any area, and they exist in different places on land and in water.

Practices: Developing and Using Models

Planning and Carrying Out Investigations