

-Science-
(3rd Grade)

Physical Science

Properties of Matter

How does the structure of matter affect the properties and uses of materials?

- **Recognize that matter has properties that can be identified and described through simple tests**

Initial Understanding

- Observe safety guidelines when handling chemicals
- Identify chemical and physical properties
- Observe evaporation, condensation and filtration
- Observe that heating and cooling causes changes in some of the properties of materials

Develop and Interpretation

- Describe the characteristics of acids and bases
- Explain what happens when heat is added to certain materials
- Explain what happens when cooling is added to certain materials

Making Connections

- Sort and classify materials based on properties such as dissolving in water, sinking and floating, conducting heat, and attracting to magnets
- Understand that common materials can be classified as being acidic, neutral or basic

Critical Stance

- Describe and explain the effect of heating on the melting, evaporation, condensation and freezing of water
- Demonstrate that chemical reactions are continually happening around us

Life Science

Heredity and Evolution

What processes are responsible for life's unity and diversity?

Organisms can survive and reproduce only in environments that meet their basic needs.

- **Recognizes differences and similarities in animal and plant life cycles**

Initial Understanding

- Observe that animal and plant species have unique characteristics that enable them to survive in a given environments

Developing an Interpretation

- Identify the survival needs of animals
- Identify different ways that the unique characteristics of animals enable them to survive in their given environment

Making Connections

- Describe the connection between animals' needs and their environment

Critical Stance

- Compare the needs/characteristics of animals' adaptations that are addressed by their unique environment
- Demonstrate that animals' unique characteristics enable them to adapt

- **Demonstrate an understanding between producers, consumers, and decomposers**

Initial Understanding

- Recognize and understand the differences among producers, consumers, and decomposers
- Compare and contrast herbivores, carnivores, omnivores, and decomposers

Developing a Interpretation

- Identify sequences of feeding relationships in a food chain
- Demonstrate how food chains form food webs

Making Connections

- Explain how a change in one part of a food chain might affect the rest of the food chain

Critical Stance

- Explain how changes made in the environment by animals and humans affect other living organisms

- **Recognize differences among flowering plants (angiosperms)**

Initial Understanding

Identify the life cycle of flowering and non-flowering plants

Developing an Interpretation

Explain the parts of the flowering plant

Observe the unique relationship between insects and flowering plants

Making Connections

Illustrate the relationship between the flowering parts of the plant and their pollinators that include insects, birds, other animals, and wind

Critical Stance

Explain, draw and demonstrate the relationship that exists between plants and insects and small mammals

- **Recognize characteristics of non-flowering plants (gymnosperms)**

Initial Understanding

Recognize that not all plants have flowers but that all plants produce seeds/spores

Identify the parts of the non-flowering plants and where in the environment they are found

Developing an Interpretation

Describe and illustrate how flowering and non-flowering plants are able to reproduce

Making Connections

Illustrate the relationship between plants and insects, small mammals, wind

Critical Stance

Demonstrate that plants are the foundation of life on Earth

Explain how different plants and animals are adapted to obtain air, water, food and protection in water habitats

Earth Science

The Changing Earth

How do materials cycle through the Earth's systems?

- **Earth materials have different physical and chemical properties**

Initial Understanding

Safety rules are presented when handling the rocks and minerals

Identify sedimentary, igneous and metamorphic rock

Rocks and minerals have unique properties that may be identified through observation and testing

Understand that coal is a fossil fuel

Developing an Interpretation

Describe the rock cycle and the forces that change rocks

Rocks and minerals have unique properties that determine how they formed

Describe the physical properties of rocks and relate them to their potential uses

Explain how coal is formed

Making Connections

Relate the properties of rocks to the possible environmental conditions during their formation

Rocks and minerals can be identified through unique properties such as transparency, luster, hardness, and crystal shape

Understand that the underlying component of coal is decaying plant matter

Critical Stance

What defines rocks and minerals?

Describe the relationship between dating rock layers and fossils with the evolution of organisms

Science and Technology in Society

How do science and technology affect the quality of our lives?

- **Earth materials provide resources for all living things, but these resources are limited and should be conserved**

Initial Understanding

Develop an awareness of natural resources including energy and materials

Decisions made by individuals can impact the global supply of many resources

Observe, describe, and classify different natural resources

Developing an Interpretation

Describe how earth materials can be conserved by reducing the quantities used

Interpret data on the use of natural resources

Making Connections

Explain what happens to trash at the landfill

Compare and contrast various disposal methods: alternate usage

Explore reusing and recycling materials rather than discarding them

Critical Stance

Draw conclusions about how new materials or material change can lead to conservation

Create alternative solutions to polluting the environment