

Grade 4 Science-Technology/Engineering

Life Science

Characteristics of Organisms

Students will be able to:

- Identify the parts of a plant and describe the function of each part of the plant.
- Classify plants based on their individual characteristics.
- Describe the interdependence of plant functions and how these functions relate to the plant's survival.
- Relate foliage change to chlorophyll loss.

Life Cycles and Heredity

Students will be able to:

- Describe the basic life cycle of plants including decomposition.
- Identify stages in the life cycle of a white pine tree.
- Compare life cycle of the white pine tree to other plants.

Organisms and Their Environment

Students will be able to:

- Describe the interactions of living things with their environment.
- Explain how living things adapt/migrate/die.
- Describe the interdependence of living things within a closed system (terrarium, river tank, etc.).
- Describe the how organisms respond to internal and/or environmental stimuli.
- Identify the components of photosynthesis.
- Describe the exchange of gases that occurs during photosynthesis.

Earth/Space Science

Structure of the Earth System

Students will be able to:

- Describe how different types of soil support different types of plant life.
- Describe the chemical composition and texture of layers of soil.
- Describe how different types of soil retain water.
- Explain how soils are formed from the decomposition of plant and animal life.
- Identify and discuss the components of weather (temperature, moisture, wind speed and direction, and precipitation).
- Explain the effect of variables on weather.
- Discuss different forms of precipitation: rain, snow, sleet, and hail.
- Identify global patterns of atmospheric movement and how they affect local weather.
- Explain the difference between weather and climate.
- Relate condensation to evaporation and the water cycle.

Earth's History

Students will be able to:

- Describe the effects of landslides.
- Describe the effects of wind erosion.
- Compare/contrast the effects of erosion on rocks, landforms, and plants.

Earth in the Solar System

Students will be able to:

- Relate revolution to movements of planets around the sun, and moons around planets.
- Define orbit and compare the orbits of various planets within our solar system.

Physical Science

Chemistry - Properties of Matter

Students will be able to:

- Describe the properties of objects (size, shape, and weight) to the properties of materials (color, texture, hardness).
- Compare the reflective capacity of different colors.

Physics – Energy

Students will be able to:

- Use a spring scale to measure force needed to lift, slide objects.
- Compare the force needed to lift/slide objects.
- Describe sound variables such as pitch, volume, tone, and rhythm.
- Explain the relationship between sound and vibration and discuss how the variable can be controlled.
- Identify sources of light.
- Describe projected light and images.
- Identify materials that are transparent, translucent, and opaque; differentiate the characteristics of each type of material.
- Define, demonstrate, and differentiate between reflection and refraction.

Technology/Engineering

Materials and Tools

Students will be able to:

- Identify materials used to accomplish a design based on a specific property (weight, strength, hardness, and flexibility).
- Identify the parts of a class I lever.
- Discuss material requirements for common devices including a lever (seesaw and wheelbarrow).
- Measure the force needed to lift an object using a lever.
- Predict the amount of effort needed to move a load with a lever.
- Investigate the interaction/uses of gears.

- Identify and explain the differences between simple and complex machines (hand can opener with multiple gears, wheel, wedge, gear, and lever).