

Science Grade 2

UNIT I: Earth and Space Science

Goal 1. The Moon - The student will use scientific skills and processes to observe, identify and describe the Moon and its physical properties, location, and movement.

Objectives - The student will be able to:

- a. Identify and describe a science problem related to the Moon.
- b. Describe the physical properties of the Moon.
- c. Observe the appearance of the Moon in the daytime and nighttime sky.
- d. Observe and record data about the location and movement of the Moon over time.
- e. Observe and describe the repeating pattern of lunar phases. Use science knowledge to make decisions and/or devise a plan to solve a problem.

Goal 2. Soil and Erosion - The student will use scientific skills and processes to describe and compare land features and soil characteristics; identify causes, effects, and prevention of soil erosion; and describe the effects of human and natural activities on soil.

Objectives - The student will be able to:

- a. Identify and describe a science problem related to soil characteristics and erosion.
- b. Describe and compare characteristics of different soils.
- c. Compare, and diagram the way in which soil layers.
- d. Observe and explain how soil can be formed by weathering.
- e. Measure and compare water retention of several types of soil.
- f. Identify and classify a variety of Earth surface features (i.e., hills, mountains, valleys, and continents) and water systems (i.e., rivers and oceans).
- g. Predict, observe, and identify causes and effects of soil erosion.
- h. Explain how water erodes unprotected soil.
- i. Predict, observe, and identify the effect of humans and other organisms on soil (e.g. erosion, pollution, building projects).
- j. Use science knowledge to make decisions and/or devise a plan to solve a problem.

UNIT II: Physical Science

Goal 1. Exploring Interactions - The student will use scientific skills and processes to describe and compare interactions of matter and describe, compare, and evaluate materials that accelerate or slow interactions.

Objectives - The student will be able to:

- a. Identify and describe a science problem related to interactions of matter.
- b. Describe and compare interactions of solids and liquids.
- c. Create mixtures and separate them based on differences in properties.
- d. Predict, record, and compare interactions of substances with water of different temperatures.
- e. Measure, record, and compare water temperature, using a temperature probe and thermometer.
- f. Give examples that show that energy can warm a substance (e.g. sun, stove top).
- g. Describe and compare interactions of ice with various materials that accelerate or slow melting.
- h. Draw conclusions based on observable evidence about materials that will interact with ice to accelerate melting.
- i. Draw conclusions based on observable evidence to identify materials that are good insulators.
- j. Use knowledge of science to make decisions and/or devise a plan to solve a problem.

UNIT III: Physical Science (This is an optional unit.)

Goal 1. Sink and Float - The student will use scientific skills and processes to describe and compare characteristics of sinking and floating objects.

Objectives - The student will be able to:

- a. Identify and describe a science problem related to sinking and floating.
- b. Predict, identify, and compare objects that will sink and float in water.
- c. Explain that when an object is placed in water it displaces water (pushes water out of the way to make space for itself).
- d. Observe displacement by measuring the water level before and after an object is placed in a container of water.
- e. Explain that sometimes water pushes against an object strongly enough that the object will float.
- f. Investigate how characteristics (e.g. size, weight) of an object may affect whether it sinks or floats.
- g. Predict, observe, and compare the shape of an object with its ability to float.
- h. Construct a model that will float and hold a specified amount of weight.
- i. Explain how changing a model's design affects its ability to float and/or hold a certain amount of weight.
- j. Use knowledge of science to make decisions and/or devise a plan to solve a problem.

UNIT IV: Life and Environmental Science

Goal 1. Characteristics of Organisms - The student will use scientific skills and processes to describe and compare characteristics, basic needs, and life cycle of an organism.

Objectives - The student will be able to:

- a. Identify and describe a science problem related to characteristics of organisms.
- b. Observe, describe, and identify structural parts of an insect and the functions of those parts.
- c. Explain that all living things can be compared based on similarities and differences (i.e. external features).
- d. Classify collected organisms as insects or non-insects.
- e. Observe, describe, and record butterfly larvae structures and behaviors.
- f. Identify the structural changes in the various stages of a butterfly larva's growth and how they allow the organism to perform different functions.
- g. Predict and identify food preferences of butterfly larvae.
- h. Describe, record, and compare characteristics of different stages of a butterfly's life cycle.
- i. Observe, describe, and identify structural parts of a butterfly and the functions of those parts.
- j. Predict and identify the food preferences of an adult butterfly.
- k. Compare the food preferences of a butterfly larva to an adult butterfly.
- l. Explain that animals need air, water, and food to survive.
- m. Explain how the habitat provides basic needs (i.e., food, water, air) for the larvae and butterflies.
- n. Describe that offspring are very much, but not exactly, like their parents and one another.
- o. Use knowledge of science to make decisions and/or devise a plan to solve a problem.