

FOURTH GRADE SCIENCE
THEME: INTERDEPENDENCE

Goal

Students in the fourth grade discover that plants and animals rely on each other, as well as their environment, in order to meet their basic needs. The goal is to provide students with many opportunities to explore the interaction of plants and animals with their environment so they can develop concepts of ecosystems, changes on the Earth's surface and the effect of machines on plants and animals. The science program should continue to be experiential as skill levels develop.

Science Processes and Inquiry

- 1. The student will engage in investigations that lead to the discovery of science concepts.**
 - a. Measure and estimate the weight, length, and volume of objects, using a variety of measurement tools.
 - b. Formulate predictions, test predictions, and draw conclusions.
 - c. Construct and interpret graphs from measurements.
 - d. Practice safety procedures in all science investigations.

Physical Science

1. Electricity / Magnetism – The student will infer that electricity and magnetism have related effects that have many useful applications in everyday life.

- a. Design an electric circuit and explain each part of the circuit.
- b. Evaluate the ability of an electric circuit to produce light, heat, sound, motion and magnetic effects.
- c. Identify, compare, and contrast a conductor and an insulator. Give examples of each.
- d. Determine that magnets have two poles, labeled north and south, and like poles repel each other while unlike poles attract each other. Measure magnetic effects over distance or through substances such as glass and paper.

2. Machines – The student will determine that simple machines can make it easier to move things.

- a. Identify types, examples, and functions of simple machines:
 - *Ramp
 - *Lever
 - *Pulley
 - *Screw
 - *Inclined Plane
 - *Wheel and Axle
- b. Analyze simple and complex machines to determine how the machines make the work easier.
- c. Define work and force.

Life Science

1. Plants/Animals – The student will analyze the interdependence of plants and animals.

- a. Describe the function of organisms within the population of an ecosystem:
 - *Producers
 - *Consumers
 - *Decomposers
- b. Assess a variety of ecosystems and evaluate the variety of organisms an ecosystem can support.
- c. Relate the role of light, range of temperature, and soil composition to an ecosystem's capacity to support life.
- d. Evaluate the major source of energy for ecosystems (sunlight) and how it contributes to the food chain.
- e. Assess the interaction of organisms within an ecosystem. Many plants depend on animals for pollination and seed dispersal while many animals depend on plants for food and shelter.
- f. Explore how ecosystems can be affected by changes in the environment (e.g. industrial waste, land development).

Earth Science

1. Rocks/Minerals – The student will observe that the properties of rocks and minerals reflect the processes that formed them.

- a. Describe the composition of a mineral.
- b. Analyze the mineral composition of rocks.
- c. Assess the uses of rocks and minerals.
- d. Classify rocks according to their properties.

2. Earth's Surface – The student will explore how waves, wind, water, and ice shape and reshape the Earth's land surface.

- a. Investigate and describe how the Earth's surface is constantly changing.
- b. Determine that some changes in the Earth are due to slow processes, such as erosion, while some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.
- c. Determine that natural processes (freezing/thawing, the growth of roots) cause rocks to break down into smaller pieces.
- d. Infer that moving water erodes landforms, reshaping the land by taking it away from some places and depositing it as pebbles, sand, silt, and mud in other places.

Experiential Location Suggestions:

School Grounds
Landscaped Yard
Creek
Park
Pond
Oxley Nature System

Other Theme Suggestions:

Cause and Effect
Balance
Conformity
Relation
Connections