

FIFTH GRADE

CONTENT STRANDS:

Life Science (L)

Earth and Space Science (E)

Physical Science (P)

COMPETENCIES and Suggested Teaching Objectives:

1. Identify and describe structures and functions in living systems. (L, E)

- a. Investigate levels of organization in organisms including cells, tissues, organs, organ systems, whole organisms, and ecosystems.
- b. Explore ecosystems and biomes.

2. Identify and describe reproduction and heredity of organisms. (L, P)

- a. Define and recognize examples of sexual and asexual reproduction.
- b. Explore how traits are used to classify individual inheritance patterns.

3. Determine the factors that influence the regulation and behavior of organisms. (L, E)

- a. Identify and describe resources needed to grow, reproduce, maintain, and survive in a changing environment.
- b. Investigate ways organisms adapt to their environment.

4. Examine the physical factors of populations as they relate to the formation of an ecosystem. (L, E)

- a. Identify, describe, and illustrate the roles among producers, consumers, and decomposers in a food web.
- b. Investigate resources and other factors (living and nonliving) that promote and limit growth of populations in an ecosystem.

5. Explore the diversity and adaptations of organisms. (L, E)

- a. Classify organisms by their similarities.
- b. Explore and explain biological adaptations in a particular environment.
- c. Research and investigate environmental changes and the inability of a species to adapt.

6. Investigate the structure of the Earth. (E)

- a. Investigate the structure of the atmosphere (gas-air), hydrosphere (liquid-water), and lithosphere (solid-land).
- b. Examine how organisms affect the composition of the Earth and its atmosphere.
- c. Analyze processes that cause changes on Earth.
- d. Explore fossils as indicators of how life and environmental conditions have changed.

7. Investigate the Earth as a part of the solar system. (E, P)

- a. Explore how the Earth's motion defines the day and the year and influences the phases of the moon and eclipses.
- b. Explain how gravity influences the action of the tides.
- c. Explain and illustrate how the tilt of the Earth's axis and Earth's revolution around the Sun create the seasons.

8. Identify properties and changes of matter. (E, P)

- a. Observe and explore physical and chemical properties such as density, boiling/freezing point, and solubility of a substance.
- b. Explore, observe, discuss, and record physical and chemical changes using everyday substances.
- c. Recognize elements that combine chemically to produce compounds.
- d. Demonstrate the ability to use simple measuring devices using metric and English units.

9. Investigate the effect motions and forces have on objects. (E, L, P)

- a. Explore, measure, and graph the motion of an object.
- b. Explore and measure the effect of force on an object.

1. Examine the transformations of forms of energy. (P)

- a. Design and construct simple and compound machines.
- b. Design and construct electrical circuits (open, closed, series, parallel).
- c. Design and construct an electromagnet.

Process Strands:

Unifying Concepts And Processes	Science As Inquiry	Science And Technology	Science In Personal And Social Perspectives	History And Nature Of Science
Systems, order, and organization	Abilities necessary to do scientific inquiry	Abilities of technological design	Personal Health	Science as a human endeavor
Evidence, models, and explanation	Understandings about scientific inquiry	Understandings about science and technology	Population, resources, and environments	Nature of Science
Change, constancy and measurement			Natural hazards	History of Science
Evolution and equilibrium			Risks and benefits	
Form and function			Science and technology in society.	

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Grade Level: Fifth

Comp.	Obj.	Suggested Teaching Strategies	Suggested Assessment
1	a	<ul style="list-style-type: none"> Using a microscope, have students view cells from different tissues and organs of the human body. Have students sketch the cells. (i.e., cheek or onion cells) Create and illustrate a body system using a student body outline. 	<ul style="list-style-type: none"> Student Work Body Drawing
1, 3	a, b	<ul style="list-style-type: none"> Construct an ecosystem in a closed, clear container. Include living and non-living items. Make observations. 	<ul style="list-style-type: none"> Student Journals
2	a	<ul style="list-style-type: none"> Dissect and identify the parts of a flower. 	<ul style="list-style-type: none"> Student Work
2	b	<ul style="list-style-type: none"> Chart and graph traits such as eye color, hair color, and height of the students. 	<ul style="list-style-type: none"> Student Work
3	b	<ul style="list-style-type: none"> Observe movement of an earthworm on wax paper, damp paper towel, and potting soil for 5 minutes. Observe and chart results. 	<ul style="list-style-type: none"> Student Work
4	a	<ul style="list-style-type: none"> Construct a food web using animals from the state of Mississippi. 	<ul style="list-style-type: none"> Student Chart
1, 4, 5	a, b, c	<ul style="list-style-type: none"> Play the Predator-Prey game. Assign students the roles of fox, hunter, and rabbit. On a playing field, prey must reach a certain point to retrieve food, water, and shelter without being tagged. Safe places are placed throughout the area. If prey has gathered food, water, and shelter and returned to their starting point, they have survived. 	<ul style="list-style-type: none"> Teacher Observation
5	a	<ul style="list-style-type: none"> Construct a bubble map (diagram) to show similarities of organisms. 	<ul style="list-style-type: none"> Map
3,5	b	<ul style="list-style-type: none"> Students research a given environment and determine how organisms adapt and survive in that environment. 	<ul style="list-style-type: none"> Student Research
5	a, b	<ul style="list-style-type: none"> Observe the symmetrical and asymmetrical characteristics of living organisms and non-living objects. 	<ul style="list-style-type: none"> Student Drawings
6	a	<ul style="list-style-type: none"> Pangea Puzzle: Arrange puzzle pieces as they might have looked at various times in Earth's geological past. Discuss the Pangea Theory. 	<ul style="list-style-type: none"> Teacher Observation Student Response

Comp.	Obj.	Suggested Teaching Strategies	Suggested Assessment
6	b	<ul style="list-style-type: none"> Observe earthworms and record how they move, work, and alter the environment. 	<ul style="list-style-type: none"> Student Journal
6	c	<ul style="list-style-type: none"> Observe changes in the school environment. Focus attention on examples of weathering and erosion. 	<ul style="list-style-type: none"> Student Journal
6	d	<ul style="list-style-type: none"> Construct a fossil model using Plaster of Paris. Explain how fossils are formed and preserved. 	<ul style="list-style-type: none"> Teacher Observation
7	a	<ul style="list-style-type: none"> Have students observe and draw phases of the moon. 	<ul style="list-style-type: none"> Record of Observations
7	c	<ul style="list-style-type: none"> Using a flashlight and globe, have students investigate the Earth's rotation around the sun. 	<ul style="list-style-type: none"> Teacher Observation
7	a, b, c	<ul style="list-style-type: none"> Students correctly arrange Earth, its moon, and the planets in order of their sizes, their rotation periods, and their orbital periods. Take a field trip to a planetarium to see a program that shows the planets. 	<ul style="list-style-type: none"> Teacher Observation
8	a	<ul style="list-style-type: none"> Swab a student's hands, one with alcohol and one with water, and explain that the cool feeling they experience is the alcohol evaporating. (Alcohol evaporates at a lower boiling point than water.) Have students test the solubility of sugar at different temperatures and graph the results. 	<ul style="list-style-type: none"> Teacher Observation Teacher Observation Graphs
8	b	<ul style="list-style-type: none"> Put some baking soda in a balloon and place it on the mouth of a soda bottle containing about $\frac{1}{4}$ cup of vinegar. Watch the balloon inflate. Create "Goop". Combine 100 ml liquid laundry starch, 1 teaspoon Elmer's glue, and 1 teaspoon of salt. 	<ul style="list-style-type: none"> Teacher Observation Student Product
8	d	<ul style="list-style-type: none"> Find density of spheres using water displacement. 	<ul style="list-style-type: none"> Teacher Observation
9	a	<ul style="list-style-type: none"> Construct a pendulum using string and washers. Measure and graph the period of the pendulum as the weights and string lengths are changed. 	<ul style="list-style-type: none"> Teacher Observation Graphs

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9	b	<ul style="list-style-type: none"> Measure and graph how far a cylinder-shaped battery will travel on different surfaces. Roll the battery down a ramp landing on various surfaces and measure the distance it rolled. Find the average of three trials and graph. 	<ul style="list-style-type: none"> Teacher Observation
10	a	<ul style="list-style-type: none"> Students construct a windmill. 	<ul style="list-style-type: none"> Teacher Observation
10	b	<ul style="list-style-type: none"> Using a C-battery, light bulbs, and wires, students construct electrical circuits. 	
10	c	<ul style="list-style-type: none"> Construct an electromagnet by wrapping a piece of wire around a large iron nail. Hook it to a battery to make the electromagnet. Experiment with number of coils vs. how many paper clips it will pick up. 	

