

SCIENCE

LENGTH OF TIME: one year

GRADE LEVEL: 1

COURSE STANDARDS:

Students will:

1. Identify basic needs of an organism. (PA Academic Std 3.3a, 4.1c, 4.3a, 4.6a)
2. Know that living things are made up of parts that have specific functions (e.g. organs and organ systems) and compare/contrast how the organs of different species have common functions (i.e. lungs and gills are both used for respiration) (PA Academic Std 3.3.4b)
3. Observe similarities and differences among objects using the five senses. (PA Academic Std 3.2.4b)
4. Organize data on charts and graphs. (PA Academic Std 3.7.4b)
5. Use standard and nonstandard units of measurement to perform experiments. (PA Academic Std 3.2.4c, 3.7.4b)
6. Demonstrate an understanding of the properties of liquids and solids. (PA Academic Std 3.1.4e, 3.2.4b)
7. Investigate the properties of unknown solids and liquids. (PA Academic Std 3.4.4a)

RELATED PA ACADEMIC STANDARDS FOR SCIENCE AND TECHNOLOGY

- 3.1 Unifying Themes
 - E. Change
- 3.2 Inquiry and Design
 - B. Process Knowledge
 - C. Scientific Method
- 3.3 Biological Sciences
 - A. Living Forms
 - B. Structure and Function
- 3.4 Physical Science, Chemistry and Physics
 - A. Matter
- 3.7 Technological Devices
 - B. Instruments

RELATED PA ACADEMIC STANDARDS FOR ENVIRONMENT AND ECOLOGY

- 4.1 Watersheds and Wetlands
 - C. Physical Factors
- 4.3 Environmental Health
 - A. Environmental Health Issues
- 4.6 Ecosystems and their Interactions
 - A. Living and Nonliving Components

PERFORMANCE ASSESSMENTS:

Students will demonstrate achievement of the standards by:

1. Drawing a diagram of a living thing and describing what it needs to be healthy. Graph growth if appropriate to organism. (Course Standards 1, 4)
2. Keeping a narrative journal that records observations using the five senses of the growth of a plant or animal. (Course Standards 2, 3, 5)
3. Solving a measurement problem using standard and non-standard units of measurement (i.e. distance, height of an object). (Course Standard 5)
4. Conducting tests to investigate two new liquids and solids. (Course Standards 3, 4, 6, 7)

DESCRIPTION OF COURSE:

This course allows students to observe, and investigate science concepts of biology, physical science, and chemistry. This course introduces the student to a variety of topics, such as: specific needs of organisms, the diversity of living things, how organisms grow, change and die; how to use technology to measure and compare quantities; properties of liquids and solids, how to run tests to investigate properties of liquids and solids.

TITLES OF UNITS:

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|---|------------|
| 1. Biology, <u>Organisms</u> | 30-40 days |
| 2. Physical Science, <u>Comparing and Measuring</u> | 30-40 days |
| 3. Chemistry, <u>Solids and Liquids</u> | 30-40 days |

SAMPLE INSTRUCTIONAL STRATEGIES:

1. Demonstration
2. Shared reading
3. Discussion
4. Cooperative groups
5. Investigation
6. Observation
7. Experimentation
8. Differentiated activities and assessments

MATERIALS:

1. Carolina Biological Kits, Grade 1, 1998

METHODS OF ASSISTANCE AND ENRICHMENT:

1. Computer - interactive programs
2. Peer assistance/parent helpers
3. Special projects
4. Cooperative groups

PORTFOLIO DEVELOPMENT:

1. Diagram and description of a living thing
2. Record of an investigation
3. Journal

METHODS OF EVALUATION:

1. Class participation
2. Projects
3. Teacher and/or text tests

INTEGRATED ACTIVITIES:

1. Concepts
 - animals
 - technology/technological tools
2. Communication
 - exchange information orally
 - converse
 - construct meaning
 - produce, perform or exhibit work
 - listen and understand oral messages
 - use the writing process
3. Thinking/Problem Solving
 - observe
 - recognize patterns
 - construct
 - make decisions
 - draw conclusions
 - make critical judgments about
 - compute, measure, estimate
 - show relationships
4. Application of Knowledge
 - use and evaluate
 - relate
 - exhibit skills
 - demonstrate connections
5. Interpersonal Skills
 - demonstrate skills
 - work cooperatively
 - communicate effectively
 - work effectively with others