

Science

Grade 1

Program Goal:

Students will develop a curiosity for and understanding of our universe, including a sense of stewardship toward God's creation and dwindling natural resources. They will develop critical and independent thinking skills and a knowledge base which will enable them to solve (scientific) problems and to create new and ethical solutions for the future of our world.

Grade Level Goal:

In the first grade, students will develop a curiosity and understanding of God's creation. They will explore topics in earth, life, physical and space sciences while developing their science, math and reading skills. A knowledge base supported by independent thinking skills will be established.

Program Goal Objectives:

Scientific Curiosity:

1. The learner will make use multi-sensory activities to relate observations to everyday life.
2. The learner will begin to gather data using scientific measurement to record and gather data.
3. The learner will use senses, experiences and other resources to make observations in order to generate questions about the world around them.
4. The learner will use observations and experience to explore similarities and differences in the world around them.
5. The learner will gain an understanding that science is an on-going process that is present all around us.

Stewardship:

1. The learner will develop healthy habits and respect for the body having recognized that they are part of God's creation.
2. The learner will demonstrate responsibility by taking care of their own environment and God's creation.
3. The learner will participate in a variety of projects as a response to the call to be a good steward to God's creations.
4. The learner will understand that all living things have value as part of God's creation.
5. The learner will grow in appreciation for the beauty of God's creation.

Problem Solving/Critical Thinking:

1. The learner will develop critical thinking skills using a variety of teacher guided strategies.
2. The learner will compare and contrast data.
3. The learner will develop problem solving skills independently in small groups.
4. The learner will develop interactive skills such as listening, turn taking, leadership, and participation.
5. The learner will develop and demonstrate strategies for reviewing the process of problem solving.
6. The learner will take measurements and begin to interpret data to draw conclusions.
7. The learner will begin to use the scientific method to collect, organize, analyze, and interpret data.
8. The learner will take risks, sharing ideas and information with their classmates.

Ethical Perspective:

1. The learner will show respect for all forms of life.
2. The learner will grow in the realization every human life is "precious, that people are more important than things."
3. The learner will recognize their call "to protect people and the planet, living our faith in relationship with all of God's creation."
4. The learner will demonstrate the use of Catholic faith values when making decisions.
5. The learner will act responsibly while using resources wisely.
6. The learner will cooperate and show consideration for others while working in groups.

Content Criteria:

Earth Science:

Geosphere:

1. The learner will identify and describe features of the earth.
2. The learner will describe positive and negative effects of human activity on the environment.

Weather/Atmosphere:

1. The learner will describe how air and water interact to create weather.
2. The learner will continue to collect, organize and compare daily weather conditions.
3. The learner will identify and describe various forms of weather.
4. The learner will identify the formation of various types of clouds.

Hydrosphere:

1. The learner will describe and compare different bodies of water.
2. The learner will describe water as a renewable resource.
 - a. The learner will demonstrate the parts of the water cycle.
 - b. The learner will identify how water is renewable.

Life Science:

1. The learner will chart evidence that characteristics are passed from parents to young.
2. The learner will identify and describe functions of the brain and heart.
3. The learner will describe good health habits for dental hygiene, nutrition, sleep and exercise.
4. The learner will describe the life cycle of native animals and plants.
5. The learner will compare and contrast food, energy, and environment using a variety of native animals and plants.

Physical Science:

1. The learner will classify common objects and substances according to observable attributes.
2. The learner will measure common objects using standardized measuring units and tools.
3. The learner will describe the three states of matter and relate them to properties of air and water.
4. The learner will describe the properties of magnets and magnetic forces.

Space

1. The learner will describe objects and systems in space: star, sun, planet, moon, comet, meteor and solar system and constellations.
2. The learner will begin to describe the relationship between the rotations and orbit of the earth and time concepts: year, day, month, week, seasons.

Scope:

Earth Science

- I. Geosphere
 - A. Features
 - 1. Mountain
 - 2. Hill/Dune
 - 3. Valley/Cave
 - 4. Plain
 - 5. Island
 - 6. Peninsula
 - B. Human activity on environment
 - 1. Farming
 - 2. Roads/Tunnels
 - 3. Landfills
 - 4. Oil spills

- II. Hydrosphere
 - A. Bodies of water
 - 1. Fresh and salt water
 - 2. Oceans, lakes and ponds
 - 3. Rivers, streams
 - B. Water as renewable resource
 - 1. Water cycle
 - 2. Aquifer
 - 3. Sewage treatment

- III. Atmosphere
 - A. Weather
 - 1. Air, water and heat change each other
 - B. Weather Data
 - 1. Daily weather chart
 - a. Weather form
 - b. Temperature
 - 2. Summarize data
 - a. Week

- b. Month
- c. Season
- C. Forms of Weather
 - 1. Sunny
 - 2. Cloudy
 - 3. Fog
 - 4. Rain/Hail
 - 5. Snow/Sleet
 - 6. Windy
 - 7. Hot
 - 8. Warm
 - 9. Cold
- D. Cloud formation
 - 1. Water vapor
 - 2. Stratus
 - 3. Cirrus
 - 4. Cumulus

Life Science

- A. Heredity
 - 1. Young receive characteristics from parents
 - 2. Vocabulary , i.e., cow/calf
- B. Brain functions
 - 1. Auto/physical
 - 2. Emotion
 - 3. Logical thought
 - 4. Learning styles
 - 5. Health habits (sleep, nutrition, exercise)
- C. Heart functions
 - 1. Muscle
 - 2. Pump
 - 3. Circulatory system
 - 4. Health habits (sleep, nutrition ,exercise, no smoking)

- D. Health Habits
 - 1. Dental hygiene
 - 2. Sleep
 - 3. Nutrition
 - 4. Exercise
- E. Life Cycles
 - 1. Animal
 - a. Egg
 - b. Live birth
 - 2. Plants
 - a. Flower
 - b. Tree
- F. Interdependence
 - 1. Food
 - a. Bees and pollen
 - b. Fruits and vegetables
 - 2. Clothing
 - a. Wool
 - b. Cotton
 - 3. Shelter
 - a. Wood/lumber
 - b. Bird houses

Physical Science

- I. Common Objects
 - A. Attributes
 - 1. Color
 - 2. Size
 - 3. Shape
 - 4. Texture
 - 5. Flexibility
 - 6. Length
 - 7. Weight
 - 8. Buoyancy
 - 9. Hardness

II. Measure common objects

1. Clock
2. Ruler, yardstick, tape measure
3. Scale/Balance
4. Cups, spoons
5. Thermometer

III. Matter

A. States of Matter

1. Solid
2. Liquid
3. Gas

B. Relate to air and water

IV. Magnetic Forces

1. Attract/repel
2. North and South pole

Space

I. Objects and systems

1. Sun
2. Star
3. Planet
4. Moon
5. Comet
6. Meteor
7. Solar system
8. Constellations

II. Earth and time

1. Rotation of earth
2. Orbit of earth
3. Time concepts
 - a. Year
 - b. Day
 - c. Month
 - d. Week
 - e. Seasons

Instructional Criteria

1. Students will comprehend vocabulary.
2. Students will use measuring tools correctly.
3. Students will use charts, graphs and tables to gather and interpret data.
4. Students will use maps to gather data and analyze the earth's features.
5. Students will participate in teacher led and small group experiments.
6. Students will have the ability to compare and contrast.

Textbook Recommendations

Harcourt Brace "Science" ISBN: 0153229187

Rating: 4.87 out of 5.0

Strengths:

- Materials are aligned with the curriculum
- Materials provide for a variety of learning styles
- Assessments are provided
- Materials incorporate multicultural perspective
- Supplementary materials are a high quality
- Materials are visually attractive
- Guides and texts are well organized
- Excellent paper and pencil work

Weaknesses:

High reading level but excellent language instruction support is provided
Good multi learning style activities