

Science Grade 2

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 second grade, the students will continue to develop their interest in the world around them. They will explore plants, animals, the earth and space, weather, light, and energy sources. Their scientific curiosity will be fostered through reading, observation, active participation and problem solving.

Program Goal Objectives:

Scientific Curiosity:

1. The learner will continue to predict outcomes to further develop their own sense of curiosity.
2. The learner will continue to use 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.
6. The learner will use multi-sensory activities to relate observation to everyday life.

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 participate in a variety of projects as a response to the call to be good stewards to God's creations.
3. The learner will show respect for God's creation by actively pursuing responsible use of natural resources through conservation and preservation.
4. The learner will grow in appreciation for the beauty of God's creation.
5. The learner will recognize and value the unique characteristics, diversity and interdependence 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 gather and contrast data.
3. The learner will develop problem solving skills independently and within groups.
4. The learner will develop interactive skills such as listening, turn taking, leadership, and participation.
5. The learner will begin to identify and develop questions, make hypotheses, and conduct experiments.
6. The learner will develop and demonstrate strategies for reviewing the process of problem solving.
7. The learner will take measurements and begin to interpret data to draw conclusions.
8. The learner will begin to use the scientific method to collect, organize, analyze, and interpret data.
9. 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 recognize and describe different types of earth material.
 - a. The learner will describe and identify fossils.
 - b. The learner will identify how human activity impacts the environment.
 - c. The learner will identify types of rocks, soil, and minerals.

Weather/Atmosphere:

1. The learner will investigate world-wide climate with special emphasis on local weather.
2. The learner will describe, record and graph local weather.

3. The learner will compare and contrast world-wide climates.
4. The learner will relate weather to the water cycle.
5. The learner will describe the various formations of clouds.

Hydrosphere:

1. The learner will discover the importance of the conservation and preservation of water.
 - a. The learner will demonstrate an understanding of the appropriate vocabulary.
 - b. The learner will record various uses of water.
 - c. The learner will research environment issues.

Life Science:

1. The learner will explore the skeletal and muscular systems and how they work together in the body.
2. The learner will participate in activities that lead to healthy lifestyles.
3. The learner will develop an awareness of physical differences.
4. The learner will compare and classify familiar plants according to physical characteristics.
5. The learner will compare and classify vertebrates.
6. The learner will describe invertebrates.
7. The learner will compare and contrast vertebrates and invertebrates.
8. The learner will construct food chains to demonstrate the interdependence of living organisms.

Physical Science:

1. The learner will use tools to measure metric and standard units of weight, temperature, capacity and linear measurement.
2. The learner will differentiate between magnetic and non-magnetic materials, discover magnetic poles, manipulate magnets to demonstrate attract and repel.
3. The learner will explore the uses of electricity and apply safety rules.
4. The learner will explore shadows using natural and artificial light, and investigate how light and position effect shadows.

Space:

1. The learner will investigate the history of space explorations and manned flight.
2. The learner will discover technological developments that led to moon exploration.
3. The learner will recognize natural and artificial satellites of the earth.
4. The learner will discover that astronauts are scientists who work in space (men and women).

Scope:

Earth Science

I. Geosphere

A. Types of earth materials

1. Minerals
2. Rocks
 - a. Sedimentary
 - b. Metamorphic
 - c. Igneous
3. Soil
 - a. Sand
 - b. Clay
 - c. Topsoil

B. Fossils - as record of the earth's plant and animal history

C. Human impact on the environment

1. How man uses these materials
2. How man changes the earth's surface

II. Weather/Atmosphere

A. World wide climate conditions

1. Worldwide compare
2. Locally contrast

B. Weather (local)

1. Temperature
2. Conditions
3. Season

- C. Clouds
 - 1. Formation
 - 2. Types
 - a. Cumulus
 - b. Stratus
 - c. Cirrus

III. Hydrosphere

- A. Water cycle
 - 1. Condensation
 - 2. Evaporation
 - 3. Precipitation
- B. Uses of water
 - 1. Recreational
 - 2. Human/animal needs
 - 3. Plant needs
- C. Conservation and preservations
 - 1. Pollution
 - 2. Use resources wisely

Life Science

- A. Plants
 - 1. Classify and compare
 - 2. Compare functions of plant parts
 - a. Roots
 - b. Stems
 - c. Leaves
 - d. Flowers
 - 3. Seed parts
 - a. Seed Coat
 - b. Food storage
 - c. Embryo

- B. Animals
 - 1. Invertebrates
 - a. Compare to vertebrates
 - b. Identify some invertebrate classes
 - 1. Insects
 - 2. Mollusks
 - 3. Arachnids
 - 2. Vertebrates
 - a. Classify
 - 1. Fish
 - 2. Amphibians
 - 3. Reptiles
 - 4. Birds
 - 5. Mammals
 - b. Food chains
 - 1. Dependence
 - 2. Interdependence
- C. Human Body
 - 1. Muscles - function
 - 2. Skeletal system - functions
 - 3. Healthy lifestyles
 - 4. Awareness of physical differences

Physical Science

- A. Science tools
 - 1. Metric measurements
 - 2. Standard measurements
- B. Magnets
 - 1. Magnetic
 - 2. Non-magnetic
 - 3. Poles
 - a. North
 - b. South
 - 4. Properties
 - a. Attract
 - b. Repel
- C. Electricity

1. Uses
 2. Safety
- D. Light
1. Sources
 2. Shadows

Space Science

- A. Space exploration
1. Rockets
 2. Manned flight
 3. Space stations
 4. Satellites
 - a. Natural
 - b. Artificial
- B. Astronauts
1. Male scientists
 2. Female scientists
- C. Technology
1. Velcro
 2. Tang
 3. Satellites
 - a. TV
 - b. Cell phones

Instructional Criteria:

1. The learner will develop the ability to compare and contrast.
2. The learner will perform experiments independently and in small groups.
3. The learner will use appropriately various scientific tools to measure.
4. The learner will use charts, graphs and tables to illustrate scientific data.
5. The learner will use maps to compare and contrast worldwide weather conditions.
6. The learner will construct a food chain to illustrate the interdependence of all life.

7. The learner will develop an awareness of the contributions of male and female scientists.

Textbook Recommendations

Harcourt Brace "Science" ISBN: 0-15-322919-5

Rating: 4.9 out of 5.0

Strengths:

- Materials provide suggestions for a variety of learning styles
- Materials are at the appropriate reading/instructional level
- Material incorporates a multicultural perspective
- Supplementary materials, teacher guide and texts are of high quality and very organized
- Excellent resources for health

Weaknesses:

- "Light" is not covered
- Book contains more than we need in some area.