SCIENCE
GRADE 5

PURPOSE

The fifth grade science program will continue to focus on using a broad range of science skills in understanding the natural world. The grade five curriculum integrates all the natural sciences so that the students can appreciate the ideas that unify the science and make the connections between these ideas and concepts.

Student will experience the richness and excitement of scientific discovery of the natural world through investigating phenomena and applying scientific concepts, skills and processes to everyday experiences. The aim of this program is to help students develop scientific dispositions and habits of mind including curiosity, demand for verification, respect for logic and rational thinking, attention to accuracy, precision and patience.

Making detailed observations, drawing conclusions and recognizing unusual or unexpected data are skills needed to be able to use and validate information. The science curriculum heightens critical thinking skills by providing opportunities for students to generalize, evaluate and apply information, and solve problems by asking appropriate questions. Utilizing scientific methodology is strongly reinforced.

I. Student Outcomes

A. Scientific Process 5.1, 5.2, 5.3, 5.4

Students will:

1. Comprehend that most systems are components of larger systems. 5.1 A, B
2. Understand how components of a system influence and interact with one another. 5.1 B
3. Be able to communicate experimental findings using words, charts, graphs, pictures and diagrams. 5.3 D
4. Be able to collect and organize data to support the results of an experiment. 5.1 D
5. Determine that scientific theories emerge over time and depend on the contributions of many people. 5.2 A, B
6. Identify how people apply scientific knowledge using tools, technology, and other devices to solve problems. 5.4 A, B, C
7. Grasp how science uses mathematics as a tool to determine and support conclusions. 5.3 A, B, C, D

B. Life Science 5.5

Students will:

1. Recognize the diversity of plants and animals on earth. 5.5, B
2. Develop a classification scheme for grouping organisms. 5.5 A
3. Recognize that individuals vary within every species 5.5 B, C
4. Identify and describe external features of plants and animals that help them survive. 5.5 A
5. Develop an understanding of the adaptations of organisms 5.5 B, C
6. Compare and contrast the characteristics of organisms. 5.5 A

C. Physical Science 5.6, 5.7

Students will:

1. Recognize that matter can exist as a solid, liquid, or gas and can be transformed from one state to another by heating or cooling. 5.6 A
2. Recognize the position and motion of an object can be changed by pushing or pulling and that the changed is related to the strength of the push or pull. 5.7 A
3. Identify characteristic properties of matter, and use one or more of those properties to separate a mixture of substances 5.6 B, A
4. Show how substances can react with each other to form new substances. 5.6 B
5. Begin to understand concepts of the transfer of energy 5.7 B
6. Begin to understand concepts of motions and forces 5.7 B

D. Earth Science 5.8, 5.10, 5.9

Students will:

1. Compare different kinds of maps and explain how physical features are represented on each. 5.8 D

2. Investigate materials that make up the earth, including rocks, minerals, soils and fossils, and how they are formed. 5.8 A
3. Identify the major features of the Earth's crust, the processes and events that change them, and the impact of those changes on people. 5.8 C
4. Describe and explain the causes of the natural processes and events that shaped the Earth's surface. 5.8 C
5. Describe the physical characteristics of the components of the solar system, and compare the Earth to other planets. * 5.9 A, B
6. Explain how naturally occurring events on Earth are related to the positions of the Sun, Earth, and Moon. 5.9 A
7. Understand the process and importance of recycling. Garbage, Garbage, Garbage, by Enironment and Occupational Health and Science Institute (UMDNJ)

II. CONTENT

A. Scientific Process 5.1, 5.3, 5.4

1. Observing
   a. Comparing and contrasting
   b. Recognizing cause and effect

2. Organizing and Communicating Information
   a. Classifying and sequencing
   b. Using tables, graphs, charts and journals

3. Practicing Scientific Process
   a. Forming a hypothesis
   b. Testing a hypothesis through experiment
   c. Representing and interpreting data

B. Life Science (Unit A Ch. 1, 3) 5.5

1. Comparing Living Things
   a. Living or nonliving
   b. How are living things classified?
   c. How are animals classified?
   d. How are plants classified?

2. Adaptations
   a. What are adaptations?

b. What are some adaptations for living in water and on land?
c. Adaptations and climate
d. Organisms adaptations and their environment

C. Physical Science (Unit B Ch. 1, 2,3) 5.6 5.7

1. Classifying Matter
   a. What are elements?
   b. What are compounds?
   c. What are mixtures and solutions?
   d. How can substances be described?
   e. How do substances interact

2. Investigating Motion
   a. Measuring motion
   b. Affects of motion
   c. How does gravity affect motion?
   d. How does friction affect motion?

3. Forms of Energy
   a. Kinetic and potential energy
   b. Forms of energy
   c. Radiant energy
   d. Sound energy

D. Earth Science (Unit C Ch.1, 2, /4* and 3*optional if time permits) 5.8, 5.9, 5.10, 5.2

1. The Changing Earth
   a. What are the Earth's layers?
   b. How does the Earth's crust move?
   c. What changes the Earth's surface
   d. How do rocks reveal changes on the Earth?

2. The Earth's Resources
   a. What is a resource?
   b. How can water resources be protected?
   c. How can land resources be protected?
   d. How can clean air be protected?

3. Climate*

   a. What is the water cycle?

b. How does the sun affect climate?
c. What makes climate change?

4. Astronomy*

a. What makes up the solar system
b. What is known about stars?
c. How do scientists study plants and stars?

III. Evaluation

Students will:

A. Be prepared and ready for work.
B. Prepare work neatly.
C. Follow directions.
D. Hand in completed class work and homework assignments.
E. Participate in class discussions, activities and experiments.
F. Prepare for and successfully complete all tests and quizzes.
G. The final grade represents the teacher's professional judgment of the student's performance. All of the above areas are included in the evaluation process.

Recommended sequence for instruction:

1. Life Science, Unit A	Comparing Living Things, Chapter 1
2. Life Science, Unit A	Adaptations, Chapter 3
3. Life Science, Unit A	Ecology, Chapter 4
4. Physical Science, Unit B	Classifying Matter, Chapter 1
5. Physical Science, Unit B	Investigating Matter, Chapter 2
6. Physical Science, Unit B	Forms of Energy, Chapter 3
7. Earth Science, Unit C	Changing Earth, Chapter 1

(Incorporate Garbage, Garbage/EOSHI with The Changing Earth)

8. Earth Science, Unit C	Earth's Resources, Chapter 2
9. Earth Science, Unit C	Climate, Chapter 4
10. Physical Science, Unit B	Electrical Energy, Chapter 4 (Elective)

A. Text: Scott Forseman Science, 2000

B. Teacher Resources
1. Science Resource Kit
2. Teacher's Assessment Package
3. Interactive Transparency
4. Lab Manual

5. www.sfscience.com
6. Habitat (Magic School Bus)
7. www.sciencenetlinks.com

C. Healthy Environment - Garbage, Garbage, Garbage. Environmental and Occupational Health Sciences Institute, Copyright 1994, UMDNJ – Robert Wood Johnson Medical School.

**Include activity bank and quick quizzes
Integrate with language arts literacy and social studies when appropriate

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