

Science – Grade 7

Textbook

Glencoe/McGraw-Hill, Life Science 2005.

Supplemental Materials

For the accelerated course, Great Source, Life Science Daybook. Houghton Mifflin, 2003.

Other supplemental materials (written, audiovisual, internet based information) as needed.

Course Description

The seventh grade science course is a scientific study of the structure and function of living organisms and their ecological relationships. Principles and concepts are introduced to help students understand that there are general characteristics of life in every organism. This course develops scientific thinking, science processing skills, methods of inquiry and integration of science concepts across the curriculum.

The accelerated course at this level has the same basic curriculum objectives as the regular class. In addition, these students are required to complete a science fair project, additional lab activities, additional research projects and independent work.

Evaluation Methods

- A. Teacher prepared tests and quizzes.
- B. Lab work evaluated on neatness, accuracy and following directions.
- C. Special projects such as reports, collections and notebooks.
- D. Timely completion and accuracy of homework.

Pace of Instruction

- A. First Quarter
 - 1. Unit 1 Introduction to Life Science
Scientific method, metric measurement, lab safety
 - 2. Unit 2 The Cell
Cell structure, cell organization, cell reproduction
 - 3. Unit 3 Heredity
Genetics
- B. Second Quarter
 - 1. Unit 4 Classification of Living Things
Taxonomy, kingdoms of life
 - 2. Unit 5 Simple Living Things
Bacteria, protists, fungi

C. Third Quarter

1. Unit 6 Animals

Simple invertebrates, complex invertebrates, vertebrates

D. Fourth Quarter

1. Unit 7 Human Body

Skeletal, muscular, circulatory, respiratory, digestive and nervous systems

2. Unit 8 Plants

Seed plants, plant processes

Course Objectives

A. Scientific Inquiry

1. Uses the scientific method to solve problems.
2. Identifies and uses the SI units of length, volume, mass and temperature.
3. Uses the appropriate tools for determining scientific measurements and observations including the compound light microscope.
4. Recognizes and applies safe laboratory practices.

B. Living Things/Cells

1. Identifies the features of living things.
2. Describes the needs of living things and how they are provided.
3. Recognizes that the cell theory is one of the major theories of life science.
4. Identifies and describes the major organelles of the cell and understands the function of each.
5. Compares and contrasts prokaryotic and eukaryotic cells.
6. Explains the differences among tissues, organs and organ systems.
7. Describes the movement of materials in and out of the cell.
8. Describes the stages of mitosis and meiosis.

C. Living Things/Genetics

1. Analyzes the importance of DNA and its molecular structure.
2. Explains how dominant and recessive traits are inherited and Mendel's role in the history of genetics.
3. Uses a Punnett Square to predict genetic inheritance.
4. Identifies common genetic disorders.

D. Living Things/ Classification

1. Separates the major characteristics of the six kingdoms of life.
2. Infers the need for a classification system.
3. Uses a dichotomous key to classify organisms.

E. Living Things/ Bacteria, Protists and Fungi

1. Examines the major characteristics and members of these four kingdoms.
2. Lists harmful and beneficial features for each kingdom.

F. Living Things/ Animals

1. Arranges the characteristics of animals.

2. Distinguishes between invertebrates and vertebrates.
3. Describes the characteristics of porifera, cnidaria, annelida, nematoda, mollusca, echinodermata and arthropoda.
4. Describes the characteristics of vertebrates in the Chordata phylum.
5. Classifies members of the Chordata phylum into major classes.

G. Living Things/ Human Body

1. Identifies the functions of the skeletal system.
2. Describes the major functions of muscles.
3. Compares and contrasts the dermis and epidermis.
4. Lists and recognizes the importance of the six classes of nutrients.
5. Examines personal diet and identifies ways to improve nutrient intake.
6. Names the organs of the digestive system and describes what takes place in each.
7. Traces the pathway of blood through the chambers of the heart.
8. Understands the functions of the respiratory system.
9. Lists the functions and parts of the urinary system.
10. Lists the functions and parts of the nervous system.

H. Living Things/ Plants

1. Identifies the characteristics and structure of plants.
2. Explains the process and importance of photosynthesis.