

Scope and Sequence

Grade Seven Science 2011-2012



Unit 1- *Scientific Investigation and Reasoning: Thinking Like a Scientist*

(7.1A, B) (7.2 A, B, C)

4 Weeks (Aug. 22-Sept. 16)

- Thinking like a scientist-introduction to making observations
- Safety in the science lab
- Introduction to investigation
- Developing experimental design
- Analyzing investigations

Unit 2 –*Force, Motion and Energy- Relationships between Force and Motion*

(7.7A)

2 weeks (Sept.19-Sept.30)

- What is a force?
- What is work?
- Calculating work
- Investigating work

Note: experimental investigation will be embedded throughout the units to be taught through experiences with content (7.2A-E and 7.4A-B)

Unit 3- *Organisms and the Environment: Structure and Function in Cells*

(7.12C, D, E, F)

2 weeks (Oct.3-Oct.14)

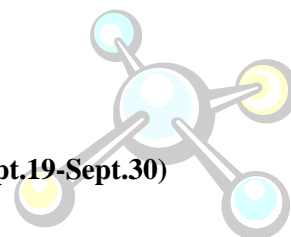
- Cell theory: all cells have similar functions
- Cells: relationship between structure and function in plants and animals
- Levels of organization in living things
- Functions of cells vs. function of organisms

Unit 4- *Organisms and the Environment: Structure and Function in the Human Organism*

9 weeks (Oct.17 –Dec. 16)

- Human body systems: structure and function(digestive in Part 3) (7.12B)
Note: skeletal/muscular need to include connections to work and force (7.7C)
- Living Things are formed from organic compounds (7.6A)
- Metabolic processes that occur in living organisms- physical and chemical changes as related to digestive system (7.6B)
- Large molecules to small molecules (7.6C)
- Organisms maintain homeostasis within the living organism (7.13B)
- Living systems maintain homeostasis or equilibrium- external stimuli (7.13A)
- Forces that affect motion in living things (7.7C)

Curriculum Assessment 1- (Jan. 9-Jan.13)



Unit 5- *Organisms and the Environment: Genetics*
(7.14 A, B, C); (7.11A, B, C)

6 weeks (Jan 5-Feb 17)

- Heredity is the passage of genetic instructions from one generation to the next
- Instructions are contained in the genetic material: DNA → Genes → Chromosomes
- Diversity in offspring is dependent on type of reproduction: Sexual vs. Asexual
- An organism's structure is inherited: using dichotomous keys
- Variation enhances survival
- Changes in genetic traits can occur over several generations
- Natural selection and selective breeding

Unit 6- *Organisms and the Environment (with Matter and Energy Embedded):*
Relationships between Matter, Energy and the Environment

6-weeks (Feb. 20-Apr. 6)

- There is a relationship between organisms and the environment
- Energy transformations in producers: photosynthesis (7.5A)
- Energy transformations within an organism: consumers (7.7B)
- Energy flow through living systems: food chains, webs, pyramids(7.5C)
- Cycling of matter and energy in living systems: carbon and nitrogen cycles(7.5B)
- Different environments support different offspring (7.10A)
- Adaptations increase survival (7.12B)
- Internal adaptations of plants and animals (7.12A)
- Biodiversity contributes to the sustainability of an ecosystem (7.10B)

Unit 7- *Earth and Space embedded with Organisms and Environments: Change in Ecosystems*
(7.8 A, B,C, and 7.10C)

5 weeks (Apr. 9-May 11)

- Role of ecological succession: pond → meadow → forest → garden (7.10C)
- Affects of weathering, erosion and deposition on the ecoregions in Texas (7.8B)
- Impact of catastrophic events on ecosystems (7.8A)
- Effects of human activity on ground and surface water (7.8C)

Unit 8- *Earth and Space : Earth's Uniqueness in Our Universe*
(7.9A, B)

2 weeks (May 14-May 25)

- Characteristics of Earth and its position in solar system
- Accommodations needed for manned space exploration

EOY Curriculum Assessment Test (May 7-18)