Freetown Lakeville Public Schools

Grade 6 Unit Guide
Science and Technology Engineering

June 4, 2003

Purpose of this Curriculum Guide:

Grade 6 Science and Technology Engineering Mission:

Grade 6 Science and Technology Engineering Philosophy:

This curriculum was written by:

Grade 6 Curriculum Guideline

Unit:

Topic:

Student Learning Outcomes

50354 Grade 6 Project: Students construct prototypes

Textbook References, Resources and Materials

Suggested Instructional Strategies

Assessment

Grade 6 Curriculum Guideline

Unit: Cells

Topic:

	Student Learning Outcomes	Textbook References, Resources and Materials
50313	Classify organisms into all kingdoms according to characteristics that they share.	1. Silver Burdette & Ginn, Science Horizons, Ad. 6 a. pg. 38 - 45 b. vocabulary - pg 38 (7 words)
50314	Recognize that all organisms are composed of cells, and that most organisms are single-celled. In these single-celled organisms, one cell must carry out all of the basic functions of life.	1. Silver Burdette & Ginn, Science Horizons, Ad. 6 a. pg. 38 - 45 b. vocabulary - pg 38 (7 words)
50315	Compare and contrast plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, cytoplasm, chloroplasts, mitochondria, vacuoles).	
50316	Recognize that within cells, many of the basic functions of organisms (e.g., extracting energy from food and getting rid of waste) are carried out. Explain how cell function is similar in all living organisms.	

Suggested Instructional Strategies

1. Look under microscope at cells
2. Note differences between plant and animal cells
3. Posters of plant and animal cells

Assessment

1. 3-D project (group)
2. presentation (individual)
3. written test - teacher created

Unit: Classification/Kingdoms/Life Processes

Topic:

Student Learning Outcomes

Textbook References, Resources and Materials

1. Silver Burdette & Ginn, Science Horizons, Ad. 6
    a. pgs. 52-56
    b. voc pg 52 (6 words)

Suggested Instructional Strategies

1. Experiment - penny drop
2. Fingerprints - thumbs up
3. fingerprint - burglar - Who dunn'it
4. hand lens -
5. classification charts -
6. slide scopes
7. Worms - how worms respond to their surroundings (lab)
8. leaf rubbings, lab on why leaves change color

Assessment

1. lab sheets for experiments
2. voc quiz/written test
3. reasoning skills for the Who dunn'it
4. microscope drawings and labels

Unit: Earth's History

Topic:

Student Learning Outcomes

Textbook References, Resources and Materials

50307 Explain and give examples of how physical evidence such as fossils and surface features of glaciation supports theories that the earth has evolved over geological time.

Suggested Instructional Strategies

Assessment

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Unit: Ecosystems

Topic:

Student Learning Outcomes

50325 Explain the roles and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.

50326 Explain how dead plants and animals are broken down by other organisms and how this process contributes to the system as a whole.

50328 Identify ways in which ecosystems have changed throughout geologic time in response to physical conditions, interactions among organisms, and the actions of humans. Describe how changes may be catastrophes such as volcanic eruptions or ice storms.

50324 Give examples of ways in which organisms interact and have different functions within an ecosystem that enable the ecosystem to survive.

Textbook References, Resources and Materials

1. Silver Burdette & Ginn, Science Horizons, Ad. 6
a. pg. 94- 105
b. vocabulary - pg. 94 (12 words)

Suggested Instructional Strategies

1. Viewed Fern Gully - discuss various ecosystems & human impact
2. diorama - food chains, & food webs.
3. Interpreting Data - Where the Banderdiddles Roam
4. Food chain - mobile

Assessment

1. diorama - rubric
2. textbook test

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Unit: Evolution Biodiversity

Topic:

	Student Learning Outcomes	Textbook References, Resources and Materials
50321	Give examples of ways in which genetic variation and environmental factors are causes of evolution and the diversity of organisms.	1. Holt, Rinehart, & Winston, Earth Science a. Chapter 6 - pg. 132 - 161 b. vocabulary - pg. 132 (11 words) flash cards
50322	Recognize that evidence drawn from fossils and comparative anatomy (e.g. horses) provides the basis of the theory of evolution.	
50323	Identify reasons that species can come to be extinct, in particular by failing to adapt to the environment.	
50329	Recognize that biological evolution (e.g. Darwin) accounts for the diversity of species developed through gradual processes over many generations.	

Suggested Instructional Strategies

1. Darwin song - sung to Gilligan's Island
2. Ecology mural
3. Created amber with bugs
4. Shell imprints with plaster of paris
5. Transformation activity from Talents Unlimited
6. Video on Charles Darwin
7. Survival of the fittest - 50 thousand year old chipmunk

Assessment

1. Ecology mural - rubric
2. written test - teacher made
3. Essay regarding Charles Darwin

Unit: Oceans

Topic:

Student Learning Outcomes

Textbook References, Resources and Materials

1. Holt, Rinehart, & Winston, Earth Science
a. pg 362 - 367
b. vocabulary - pg 364 (5 words)
2. laptops - www.sclinks.org (several link sites)
3. slide show - whales
4. power point presentation - whales/oceans

Suggested Instructional Strategies

1. Experiment - ocean currents (density affect)
2. Whale cartoons (true/false)
3. Myths - Bermuda Triangle
4. Activity/investigation - What happens when two currents collide? Pg. 363

Assessment

1. Lab sheet for experiment
2. written quiz -voc
3. drew and labeled ocean currents

Unit: Solar System

Topic:

Student Learning Outcomes

50308 Recognize that gravity plays a major role in the motion of the planets, stars, and solar system.

50311 Explain how the tilt of the earth and its revolution around the sun result in an uneven heating of the earth, which in turn causes the seasons.

50312 Recognize that the universe contains many billions of galaxies, and that each galaxy contains many billions of stars.

50309 Describe the observed moon phases and tides.

Textbook References, Resources and Materials

1. Prentice Hall, Exploring the Universe
a. pgs. 22 - 28; pgs 66- 91
b. b. vocabulary from website
c. c. laptops for research
d. library research via the internet
e. flash cards

Suggested Instructional Strategies

1. planet project - earth vs. another planet
2. planetarium model for discussion
3. space videos
4. creative solar systems (story & illustrated)
5. Math/science connection - How much would you weigh?
6. Use transformation from Talents Unlimited - Planet symbols
7. seasons - drawing - tilt/ revolution

Assessment

1. teacher generated test with essay
2. planet project - group rubric
3. planet project presentation - group - rubric
4. creative solar systems

Unit: Weather

Topic:

Student Learning Outcomes

50304 Explain heat transfer in the earth's weather and its impact on the global patterns of atmospheric movement and the temperature differences among water, land, and atmosphere.

Textbook References, Resources and Materials

1. Holt, Rinehart, & Winston, Earth Science
   a. pgs. 390- 407
   b. vocabulary p. 392 (19 words) flash cards
2. web sites used on laptops - www.scilinks.org
   (used several different link sites)
3. web sites - www.skydiary.com/kids/tornadoes.html
   &
   www.ns.ec.gc.ca/weather/hurrican/kids1a.html

Suggested Instructional Strategies

1. transparency - layer of gases
2. posters
3. experiment - Effect of pressure on cup in inverted state
4. demonstration - full of hot air
5. copied Earth pattern (fig. 16, pg 404) - global winds labeled, pressure belts, etc.
6. assembly - Thermometer Man

Assessment

1. written voc quiz/ written test
2. scientific method write up for experiments with rubric

Recommended Resources for Grade 6 Science and Technology Engineering: