

4th Grade Science Curriculum
4th Grade Life Science Nine Week Curriculum Guide
 Developed Summer 2009

Academic Vocabulary: cell, ecosystem, predator, prey, offspring, trait, life cycle, incomplete metamorphosis, complete metamorphosis, adaptations, environmental changes, endangered, extinction

Grade Level Expectations (GLEs)	Sample Essential Questions	Resources Science Safety Information	Common Experiences (or equivalent lesson)	Checks for Understanding	Integrations/Connections including inquiry, technology & engineering. * used continually through the curriculum.
Standard 1 – Cells Conceptual Strand 1: <i>All living things are made of cells that perform functions necessary for life.</i>			Time Frame: 1 st 9 Weeks Guiding Question 1: <i>How are plant and animal cells organized to carry on the processes of life?</i>		
GLE 0407.1.1 Recognize that cells are the building blocks of all living things.	What are plants and animals made of?	TE: Ch. 1, Lesson 1, pp. 26-35 -Explore: p. 27 -Quick Lab: p. 33 -Focus on Skills: pp. 36-37 *GLE 0407.Inq.1 See TE: p. Tviii Interactive Microscope: http://www.nrc-cnrc.gc.ca/eng/education/biology/microscope/index.html	TE: Focus on Skills: p. 36-37 Microscopic sketches of plant & animal cells, cell model. -Online Microscope: http://www.iknowthat.com/com/App?File=ScienceLab.htm&Type=S&SWF=cell%2Fscience_desk&App=Science+Lab For possible cell model ideas: http://www.kathimitchell.com/cells.html	<input type="checkbox"/> 0407.1.1 Use illustrations or direct observations to compare and contrast the basic structures of plant and animal cells. <input type="checkbox"/> 0407.1.2 Create a basic model of the cell that illustrates different cell structures and describes their functions.	* GLE 0407.Inq.1 Explore different scientific phenomena by asking questions, making logical predictions, planning investigations, and recording data. *LEA standard - Media TE-Reading Skill: Compare/Contrast TE-Math Link: p. 35 Estimation

Standard 2 – Interdependence Conceptual Strand 2: <i>All life is interdependent and interacts with the environment.</i>			Time Frame: 1 st 9 Weeks Guiding Question 2: <i>How do living things interact with one another and with the non-living elements of their environment?</i>		
GLE 0407.2.1 Analyze the effects of changes in the environment on the stability of an ecosystem.	How can an environmental change affect living things?	TE: Ch. 1, Lesson 2, pp. 38-47 -Literature: pp. 136- 137 -Focus on Skills: pp. 48-49 -Quick Lab: p. 41 United Streaming Video: “Concepts in Nature: Animal Predators and the Balance of Nature” Read Alouds: <i>-The Magic School Bus Hops Home</i> By: Joanna Cole <i>-The Wolves Are Back</i> By: Jean Craighead George	Biology Corner Lesson Activity: Deer Predation or Starvation http://www.biologycorner.com/worksheets/deer_predation.html	<input type="checkbox"/> 0407.2.1 Analyze how an increase or decrease in competition or predation affects an ecosystem. <input type="checkbox"/> 0407.2.2 Design a simple experiment to illustrate the effects of competition, predation, and interdependency among living things.	TE-Reading Skill: Fact and Opinion TE-Math Link: p. 47 Word problems

Standard 3 – Flow of Matter and Energy Conceptual Strand 3: <i>Matter and energy flow through the biosphere.</i>			Time Frame: 1 st 9 Weeks Guiding Question 3: <i>What scientific information explains how matter and energy flow through the biosphere?</i>		
GLE 0407.3.1 Demonstrate that plants require light energy to grow and survive.	How does light energy affect a plant's growth and survival?	TE: Ch.1, Lesson 3 pp. 50-61 -A Closer Look: p.21 -Focus on Skills: p.62 *GLE 0407.Inq.5 See TE: p. Tviii Magic School Bus Interactive Activity: http://www.scholastic.com/magicschoolbus/games/frizfreshfacts/index.htm “Living Things: Helping Things Grow Well” Information, Activity & Quiz http://www.bbc.co.uk/schools/ks2bitesize/science/activities/plants_grow.shtml	TE: Explore p. 51 “How does light affect plants?”	<input type="checkbox"/> 0407.3.3 Identify how a variety of organisms meet their energy needs.	*GLE 0407.Inq.5 Recognize that people may interpret the same results in different ways. TE-Reading Skill: Drawing Conclusions TE-Math Link: p. 61 Word Problems
GLE 0407.3.2 Investigate different ways that organisms meet their energy needs.	What are the different ways that organisms get the energy they need?	TE: Ch. 1, Lesson 3, pp. 50-60 -Tennessee: A Closer Look: pp. 20-21 -Focus on Skills: pp. 62-63 -Quick Lab: p. 55 -TN Activity: p.65	Create a type of food web or food chain model. Possible Examples: http://reptilesalive.com/news/?tag=food-web	<input type="checkbox"/> 0407.3.1 Create a food web that illustrates the energy relationships between plants and animals and the key issues or assumptions found in the model.	Latin Root: vor Meaning: to eat Exs.: carnivore, herbivore, omnivore

		<p>Intro. Video Clip (3 Min.): “The Two-Stomached Wonder” http://www.pbs.org/teachers/connect/resources/6539/preview/</p> <p>Interactive Activity “Build Your Own Food Web” http://www.gould.edu.au/foodwebs/kids_web.htm</p> <p>Animal Games: http://www.sheppardsoftware.com/content/animals/kidscorner/kidscorner3.htm</p> <p>Food Chain Info., Activity, & Quiz http://www.bbc.co.uk/schools/ks3bitesize/science/biology/feeding_act.shtml</p> <p>Read Aloud: <i>Pass the Energy, Please!</i> By: Barbara Shaw McKinney</p>	<p>http://www.stevetrash.com/lessons/lesson1.htm</p> <p>http://www.biologycorner.com/worksheets/foodweb.htm</p> <p>http://edweb.sdsu.edu/courses/edtec670/Calendar/Board/W/whoats/board-game-template.htm</p>	<p><input type="checkbox"/> 0407.3.2 Classify organisms as carnivores, herbivores, or omnivores.</p> <p><input type="checkbox"/> 0407.3.3 Identify how a variety of organisms meet their energy needs.</p>	
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Standard 4 – Heredity Conceptual Strand 4: <i>Plants and animals reproduce and transmit hereditary information between generations.</i>			Time Frame: 1 st 9 Weeks Guiding Question 4: <i>What are the principal mechanisms by which living things reproduce and transmit information between parents and offspring?</i>		
GLE 0407.4.1 Recognize the relationship between reproduction and the continuation of a species.	How does reproduction help a species survive?	TE: Ch. 2, Lesson 1, pp. 72-79 -Reading in Science: pp. 92-93 -Explore: p. 73 -Performance Assessment: p. 95 Reading TE: “Adelina’s Whales” (p. 296-309) *GLE 0407.Inq.3 See TE: p. Tviii		<input type="checkbox"/> 0407.4.1 Design a simple demonstration that illustrates the relationship between reproduction and survival of a species.	*GLE 0407.Inq.3 Organize data into appropriate tables, graphs, drawings, or diagrams. TE-Reading Skill: Drawing Conclusions TE-Math Link: p. 79 Word Problems Plant the Seed – Career: Veterinarian
GLE 0407.4.2 Differentiate between complete and incomplete metamorphosis.	How can we tell the difference between complete and incomplete metamorphosis?	TE: Ch. 2, Lesson 2, pp. 82-91 Brainpop.com “Metamorphosis” Singing Songs “Metamorphosis” http://www.acme.com/jef/singing_science/		<input type="checkbox"/> 0407.4.2 Study the life cycles of a variety of organisms and determine whether these processes illustrate complete or incomplete metamorphosis.	TE-Reading Skill: Sequencing TE-Math Link: p.91 Word Problems

Standard 5 – Biodiversity and Change Conceptual Strand 5: <i>A rich variety of complex organisms have developed in response to a continually changing environment.</i>			Time Frame: 1 st 9 Weeks Guiding Question 5: <i>How does natural selection explain how organisms have changed over time?</i>		
GLE 0407.5.1 Analyze physical and behavioral adaptations that enable organisms to survive in their environment.	How do adaptations help animals survive in their habitats?	TE: Ch. 3, Lesson 1, pp. 102-109 -Ch.3, Lesson 2, pp. 112-117 -Reading in Science: pp. 80-81 -Quick Lab: p. 108 -Explore: p. 103 -Performance Assessment: p. 133 -Explore: p. 133 *GLE 0407.Inq.2 See TE: p. Tviii Introductory Video Clip (1 min.) http://video.nationalgeographic.com/video/player/kids/animals-pets-kids/fish-kids/pufferfish-kids.html Interactive Information & Games “Form & Function” http://www.lpzoo.org/education/zebra/student/a.html	TE: Explore p. 103 “Does the shape of a bird’s beak affect what it eats?”	<input type="checkbox"/> 0407.5.1 Classify animals according to their physical adaptations for obtaining food, oxygen, and surviving within a particular environment. <input type="checkbox"/> 0407.5.2 Describe how animal behaviors such as migration, defense, means of locomotion, and hibernation enable them to survive in an environment. <input type="checkbox"/> 0407.5.3 Investigate tropisms that plants exhibit in response to changes in their environment.	*GLE 0407.Inq.2 Select and use appropriate tools and simple equipment to conduct an investigation. TE-Reading Skill: Predict, Problem & Solution TE-Social Studies Link: p. 109 Look-Alike Products

		<p>How Animals Meet Their Needs http://www.harcourtschool.com/activity/animalneeds/</p> <p>Tropisms Information & Examples: http://www-users.york.ac.uk/~drf1/tropism/jcf_1.htm</p> <p>Read Aloud: <i>How Many Ways Can You Catch a Fly?</i> By: Robin Page</p>			
<p>GLE 0407.5.2 Describe how environmental changes caused the extinction of various plant and animal species.</p>	<p>What happens to organisms when environments change?</p>	<p>TE: Ch. 3, Lesson 3, pp. 120-129 -Tennessee: A Closer Look: pp.18-19 -Be a Scientist: pp. 130-131 -Quick Lab: p. 124 -Quick Check: p. 125</p> <p>*GLE 0407.Inq.4,6 See TE: p. Tviii</p>	<p>United Streaming Video Clip: “Three Major Ecosystems on Earth: Connections Between Ancient Species and Those Alive Today”</p>	<p><input type="checkbox"/> 0407.5.4 Gather fossil information to draw conclusions about organisms that exist today.</p> <p><input type="checkbox"/> 0407.5.5 Analyze the common causes of extinction and explain how human actions sometimes result in the extinction of a species.</p>	<p>*GLE 0407.Inq.4 Identify and interpret simple patterns of evidence to communicate the findings of multiple investigations.</p> <p>*GLE 0407.Inq.6 Compare the results of an investigation with what scientists already accept about this question.</p>

		<p>“Why the Rapid Decline?” Information & Quiz http://library.thinkquest.org/25014/why/index.html</p> <p>Endangered Animals Game: http://www.sheppardssoftware.com/content/animals/kidscorner/endangered_animals/endangered_game.htm</p> <p>Read Aloud: <i>Sabertooth</i> By: Patrick O’Brien</p>			<p>TE-Reading Skill: Cause & Effect TE-Social Studies Link: p. 129 Research an Endangered Species</p>
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4th Grade Earth & Space Science Nine Week Curriculum Guide
 Developed Summer 2009

Academic Vocabulary: rotation, orbit, moon phases, lunar, geological features, weathering, erosion, nonrenewable, evaporation, condensation, precipitation, water cycle

Grade Level Expectations (GLEs)	Sample Essential Questions	Resources	Common Experiences (or equivalent lesson)	Checks for Understanding	Integrations/ Connections including inquiry, technology, and engineering. (* used continually throughout the curriculum.)
Standard 6 – The Universe Conceptual Strand 6: <i>The cosmos is vast and explored well enough to know its basic structure and operational principles.</i>			Time Frame: 2 nd 9 Weeks Guiding Question 6: <i>What big ideas guide human understanding about the origin and structure of the universe, Earth’s place in the cosmos, and observable motions and patterns in the sky?</i>		
GLE 0407.6.1 Analyze patterns, relative movements, and relationships among the sun, moon, and earth.	What is the relationship in the movement of the sun, moon, and earth?	TE: Ch. 4, Lesson 1 pp. 148-155 - Ch. 4, Lesson 2 pp. 158-165 -Quick Check: pp. 163, 164 -Art Link: p. 165 -Focus on Skills: pp. 166-167 Singing Science – “The Earth Goes Around the Sun” http://www.acme.com/jef/singing_science/	Make a model to show the sequence of the moon phases. Possible ideas: -Oreo Moon Phases Activity: http://analyzer.depaul.edu/paperplate/Oreo%20Moon%20Phases.htm -3D Models: http://www.newtonsa.pple.tv/TeacherGuide.php?id=1671	<input type="checkbox"/> 0407.6.1 Chart the movements of the sun, moon, and earth to develop an explanation for the phases of the moon and solar and lunar eclipses. <input type="checkbox"/> 0407.6.2 Sequence the major phases of the moon during a lunar cycle.	Latin root: volv Meaning: to roll Exs: revolve, evolve, revolution TE-Reading Skills: Cause & Effect Compare & Contrast TE-Math Link: p. 155 Use Multiplication p. 165 Diameter & Radius

		<p>Interactive Model: http://www.harcourtschool.com/activity/moon_phases/</p> <p>Information, Activity, & Quiz: http://www.bbc.co.uk/schools/scienceclips/ages/9_10/earth_sun_moon.shtml</p> <p>Lunar Cycle Challenge Game: http://www.sciencelinks.com/interactive/moon/moon_challenge/moon_challenge.html</p> <p>Read Aloud: <i>The Moon Book</i> By: Gail Gibbons</p>	<p>http://www.learner.org/teacherslab/pup/act_moonphase.html</p> <p>-Diagrams: http://www.ioncmaster.ca/homepage/resources/web_resources/CS_A_Astro9/files/html/module3/lessons/lesson4/phases_handout.pdf</p> <p>http://www.ioncmaster.ca/homepage/resources/web_resources/CS_A_Astro9/files/html/module3/lessons/lesson4/charting_moon.pdf</p>		<p>TE-Social Studies Link: p. 155 “Learn About Day and Night in Other Places”</p>
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<p>Standard 7 – The Earth</p> <p>Conceptual Strand 7: <i>Major geologic events that occur over eons or brief moments in time continually shape and reshape the surface of the Earth, resulting in continuous global change.</i></p>		<p>Time Frame: 2nd 9 Weeks</p> <p>Guiding Question 7: <i>How is the earth affected by long-term and short term geological cycles and the influence of man?</i></p>			
<p>GLE 0407.7.1</p> <p>Investigate how the Earth’s geological features change as a result of erosion (weathering and transportation) and deposition.</p>	<p>How can wind and water change Earth’s features?</p>	<p>TE: Ch. 5, Lesson 1 pp. 176-183</p> <p>-Ch. 5, Lesson 2 pp. 186-195</p> <p>-Be a Scientist: pp. 184-185, 196-197</p> <p>-Explore: pp. 177,187</p> <p>-Quick Lab: p.181,193</p> <p>*GLE 0407.T/E.5</p> <p>TE: p. Tix</p> <p>“Dig This!”</p> <p>Erosion Investigation</p> <p>http://www.cas.muohio.edu/scienceforohio/Erosion/L.html</p> <p>Weathering/Erosion Examples:</p> <p>http://www.kidsgeo.com/geology-for-kids/0060-weathering.php</p>		<p><input type="checkbox"/> 0407.7.1 Prepare a demonstration to illustrate how wind and water affect the earth’s surface features.</p> <p><input type="checkbox"/> 0407.7.2 Design an investigation to demonstrate how erosion and deposition change the earth’s surface.</p>	<p>*GLE 0407.T/E.5</p> <p>Apply a creative design strategy to solve a particular problem generated by societal needs and wants.</p> <p>TE- Reading Skill: Drawing Conclusions Classify</p> <p>TE-Math Link: p. 183 Writing Fractions</p> <p>TE-Math Link: p. 195 Measuring Distances</p>

		<p>Read Aloud: <i>Erosion</i> by Joshua Rutten Unitedstreaming.com “Weathering and Erosion” http://player.discovereducation.com/index.cfm?guidAssetId=11fae30e-03b1-4450-ae47-025a10b6f894&blnFromSearch=1&productcode=HUB</p>			
<p>GLE 0407.7.2 Evaluate how some earth materials can be used to solve human problems and enhance the quality of life.</p>	<p>How can we use Earth’s resources to make our lives better?</p>	<p>TE: Ch. 5, Lesson 3, pp. 198-207 -TN: A Closer Look: pp. 140-141 -Reading in Science: pp. 208-209 -Quick Check: pp. 203, 205 -TN Activity: p. 295 -Writing Link: p. 207 -Quick Lab: p. 206 *GLE 0407.T/E.4 See TE: p. Tix</p> <p>“The Roots of Trash” Investigation Lesson http://www.sciencelinks.com/lessons.php?DocID=384</p>	<p>Brainpop.com “Natural Resources” & Activity</p>	<p><input type="checkbox"/> 0407.7.3 List factors that determine the appropriate use of an earth material.</p> <p><input type="checkbox"/> 0407.7.4 Use data from a variety of informational texts to analyze and evaluate man’s impact on non-renewable resources.</p>	<p>*GLE 0407.T/E.4 Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.</p> <p>TE-Reading Skill: Main Idea & Details</p> <p>TE-Social Studies Link: p. 207 “Learn About Energy Use”</p>

Standard 8 – The Atmosphere Conceptual Strand 8: <i>The earth is surrounded by an active atmosphere and an energy system that controls the distribution life, local weather, climate, and global temperature.</i>		Time Frame: 2 nd 9 Weeks Guiding Question 8: <i>How do the physical characteristics and the chemical makeup of the atmosphere influence surface processes and life on Earth?</i>			
GLE 0407.8.1 Recognize the major components of the water cycle.	What are the different parts of the water cycle and how do the work?	TE: Ch. 5, Lesson 4, pp. 210-219 -Tennessee: A Closer Look: pp. 142-143 -Explore: p. 211 -Art Link: p. 219 Interactive Activity: http://player.discovereducation.com/view/s/hhView.cfm?guidAssetId=087777c8-4ff0-45d2-878f-e7cd90f7ee19 Singing Science “The Water Cycle Song” http://www.acme.com/jef/singing_science/ Water Cycle Interactive Activity: http://www.fossweb.com/modules3-6/WaterPlanet/activities/watercycle.html	Make a Water Cycle Model -Possible Examples: Using jars: http://www.mos.org/oceans/planet/cycle.html Using a plastic bag: http://www.groundwater.org/kc/activity1.html Using a large bowl: http://www.sciencelinks.com/pdfs/watercycle2_actsheet.pdf http://www.units.muohio.edu/dragonfly/water/experiment.shtml Using beads: http://www.valleywater.org/For_Teachers_and_Students/Teaching_materials/Songs_and_lessons/Water_Cycle_Boogie_Song.shtml	<input type="checkbox"/> 0407.8.1 Prepare a model that illustrates the basic features of the water cycle.	TE-Reading Skill: Sequence

		<p>Sing Along Song: http://www.proteacheer.org/a/12048_Water_Cycle_Song.html</p> <p>Read Aloud: <i>-Water Dance</i> By: Thomas Locker</p>			
<p>GLE 0407.8.2 Differentiate between weather and climate.</p>	<p>What is the difference between weather and climate?</p>	<p>TE: Ch. 5, Lesson 5, pp. 222-229 -Explore: p. 223 -Quick Lab: p. 227 -Focus on Skill: pp. 220-221 -Read a Photo: p. 228</p> <p>Lesson Activity Idea: http://littleshop.physic.colostate.edu/docs/CMMAP/tenthings/WeatherClimate.pdf</p> <p>Read Aloud: <i>Cloudy With a Chance of Meatballs</i> By: Judi Barrett</p>		<p><input type="checkbox"/> 0407.8.2 Use long term weather data to distinguish between weather and climate.</p> <p><input type="checkbox"/> 0407.8.3 Use an illustration to predict and draw conclusions about how weather and climate affect the water cycle.</p>	<p>Latin root: var Meaning: different Exs: vary, various, variety</p> <p>TE-Reading Skill: Fact and Opinion</p> <p>TE-Math Link: p. 229</p>

4th Grade Physical Science Nine Week Curriculum Guide
Developed Summer 2009

Academic Vocabulary: physical change, states of matter, solar energy, absorption, reflection, refraction, concave lens, convex lens, force, friction, voltage, series circuit, parallel circuit, magnetic attraction

Grade Level Expectations (GLEs)	Sample Essential Questions	Resources	Common Experiences (or equivalent lesson)	Checks for Understanding	Integrations/Connections including inquiry, technology, and engineering. (* used continually throughout the curriculum.)
Standard 9 – Matter Conceptual Strand 9: <i>The composition and structure of matter is known, and it behaves according to principles that are generally understood.</i>			Time Frame: 3 rd 9 Weeks Guiding Question 9: <i>How does the structure of matter influence its physical and chemical behavior?</i>		
GLE 0407.9.1 Collect data to illustrate that the physical properties of matter can be described with tools that measure weight, mass, length, and volume.	How can tools for measurement help us describe the physical properties of matter?	TE: Ch. 6, Lesson 1, pp. 248-257 -Focus on Skills; pp. 258-259 -Explore: p. 249 -Quick Check: p. 251 -Quick Lab: pp. 253 *GLE 0407.T/E.1/2 See TE: p. Tix *Science & Tech Lesson Ideas: http://www.pbs.org/teachers/sciencetech/inventory/scientificinquiry-35.html		<input type="checkbox"/> 0407.9.1 Use appropriate tools to measure and compare the physical properties of various solids and liquids.	*GLE 0407.T/E.1 Describe how tools, technology, and inventions help to answer questions and solve problems. *GLE 0407.T/E.2 Recognize that new tools, technology, and inventions are always being developed. TE-Reading Skill: Problem & Solution

		<p>*History of Inventions http://www.cbc.ca/kids/general/the-lab/history-of-invention/default.html 1</p> <p>United Streaming Video Clip: “Matter Analyzer” http://player.discovereducation.com/index.cfm?guidAssetId=6BAA6AFA-8229-4AAF-AFD901EC31E9FD05&blnFromSearch=1&productcode=US</p> <p>Interactive Activity: http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/maths/measures/index.htm</p>			TE-Math Link: p. 257 Calculate Density
GLE 0407.9.2 Explore different types of physical changes in matter.	How can you physically change the properties of matter?	TE: Ch. 6, Lesson 2, pp. 260-269 -Quick Lab: pp. 265, 267, 277	Demonstrate the physical changes of matter. TE: Inquiry Activity p. 261 -Quick Lab p. 265, 267	<input type="checkbox"/> 0407.9.2 Compare the causes and effects of various physical changes in matter.	TE-Reading Skill: Sequence

		<p>Interactive Activity & Quiz: http://www.bbc.co.uk/schools/scienceclips/ages/9_10/gases.shtml</p> <p>PowerPoint: http://schools.pinellas.k12.fl.us/educators/tec/Davis2/matter.ppt/sld001.htm</p>	<p>Lesson Ideas: http://www.iit.edu/~smile/ch9704.html http://teacher.scholastic.com/dirt/matter/lab.htm</p>		
<p>Standard 10 – Energy Conceptual Strand 10: <i>Various forms of energy are constantly being transformed into other types without any net loss of energy from the system.</i></p>			<p>Time Frame: 3rd 9 Weeks Guiding Question 10: <i>What basic energy related ideas are essential for understanding the dependency of the natural and man-made worlds on energy?</i></p>		
<p>GLE 0407.10.1 Distinguish among heat, radiant, and chemical forms of energy.</p>	<p>What are the differences in heat, radiant, and chemical forms of energy?</p>	<p>TE: Ch. 6, Lesson 3, pp. 272-279 -Explore: p. 273</p>		<p><input type="checkbox"/> 0407.10.1 Design an investigation to demonstrate how different forms of energy release heat or light.</p>	<p>TE-Reading Skill: Summarize</p>

		United Streaming Video Clip “Forms of Energy” http://player.discoveryeducation.com/index.cfm?guidAssetId=128DB0C2-BF77-4982-918BFFBC70F38881&blnFromSearch=1&productcode=US			
GLE 0407.10.2 Investigate how light travels and is influenced by different types of materials and surfaces.	How does light move and how does different types of materials and surfaces affect it?	TE: Ch. 6, Lesson 4, pp. 282-291 -Focus on Skills: pp. 292-293 -Quick Lab: p. 285 Interactive Activity “Aliens Attack”: http://engineeringintelect.org/resources/alienattacklink.htm	TE: Focus on Skills: p. 292-293 Observe how light passes through different materials. Reflection Interactive Activity: http://www.bbc.co.uk/schools/scienceclips/ages/10_11/see_things.shtml	<input type="checkbox"/> 0407.10.2 Design an experiment to investigate how different surfaces determine if light is reflected, refracted, or absorbed <input type="checkbox"/> 0407.10.3 Gather and organize information about a variety of materials to categorize them as translucent, transparent, or opaque.	Latin Root: flex/flect Meaning: to bend Exs: reflect, deflect, flexible TE-Reading Skill: Main Idea & Details
Standard 11 – Motion Conceptual Strand 11: <i>Objects move in ways that can be observed, described, predicted, and measured.</i>			Time Frame: 3 rd 9 Weeks Guiding Question 11: <i>What causes objects to move differently under different circumstances?</i>		
GLE 0407.11.1 Recognize that the position of an object can be described relative to other objects or a background.	How can you describe an object’s position?	TE: Ch. 7, Lesson 1, pp. 302-307 -Explore: p. 303 -Quick Check: pp. 305, 306	Inquiry Activity p. 303 How can you describe an object’s position?	<input type="checkbox"/> 0407.11.1 Identify the position of objects relative to fixed reference points.	TE-Reading Skill: Infer TE-Math Link: p. 307 Make a Graph

		<p>-Tennessee: A Closer Look: pp. 240-241</p> <p>Coordinates Game: http://www.shodor.org/interactivate/activities/GeneralCoordinates/</p>		<p>☐ 0407.11.3 Complete a coordinate graph to describe the relative positions of objects.</p>	<p>TE-Math in Science: p. 309 TE-Writing Link: p. 307</p>
<p>GLE 0407.11.2 Design a simple investigation to demonstrate how friction affects the movement of an object.</p>	<p>How does friction change the movement of an object?</p>	<p>TE: Ch. 7. Lesson 2, pp. 310-315 -Explore: p. 311 -Quick Lab: p. 313 -Focus on Skills: pp. 316-317</p> <p>Interactive Activity: – “Park World Plot” http://engineeringintegrate.org/resources/parkworldplot/parkworldplotlink.htm</p> <p>Interactive Activity & Quiz: http://www.bbc.co.uk/schools/ks2bitesize/science/activities/friction.shtml</p>	<p>Focus on Skills: p. 316-317 Conduct an investigation to demonstrate friction.</p>	<p>☐ 0407.11.2 Design an investigation to identify factors that affect the speed and distance traveled by an object in motion.</p> <p>☐ 0407.11.4 Plan and execute an investigation that demonstrates how friction affects the movement of an object.</p>	<p>TE-Reading Skill: Predict</p> <p>TE-Math Link: p. 315 Order Numbers</p> <p>TE-Social Studies Link: p. 315 Changing Transportation</p>

		<p>“Friction in Our Lives” Lesson Plan http://school.discovereducation.com/lessonplans/programs/frictioninourlives/</p>			
<p>GLE 0407.11.3 Investigate the relationship between the speed of an object and the distance traveled during a certain time period.</p>	<p>How does the speed of an object and the distance traveled over time affect each other?</p>	<p>TE: Ch. 7, Lesson 1, pp. 302-307 -TN: A Closer Look: pp. 240-241, 242-243 -Quick Lab: p. 305 -Focus on Skills: pp. 316-317 *GLE 0407.T/E.3 See TE: p. Tix</p> <p>Interactive Activity & Quiz: http://www.bbc.co.uk/schools/scienceclips/ages/10_11/forces_action.shtml</p>		<p>☐ 0407.11.5 Design and implement an investigation to determine that the speed of an object is equal to the distance traveled over time.</p>	<p>*GLE 0407.T/E.3 Identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem.</p>

Standard 12 – Forces in Nature Conceptual Strand 12: <i>Everything in the universe exerts a gravitational force on everything else; there is an interplay between magnetic fields and electrical currents.</i>			Time Frame: 3 rd 9 Weeks Guiding Question 12: <i>What are the scientific principles that explain gravity and electromagnetism?</i>		
GLE 0407.12.1 Explore the interactions between magnets.	How do magnets interact?	TE: Ch. 8, Lesson 3 pp. 348-357 -Quick Lab: p. 329 Singing Science: “It’s a Magnet” http://www.acme.com/jef/singing_science/ Brainpop.com “Magnetism”		<input type="checkbox"/> 0407.12.1 Explore the interactions between an electrically charged object and other materials.	TE-Reading Skill: Problem & Solution
GLE 0407.12.2 Observe that electrically charged objects exert a pull on other materials.	How do electrically charged objects affect other materials?	TE: Ch. 8, Lesson 1 pp. 326-333 -Ch. 8, Lesson 3, pp. 348-357 -Be a Scientist: pp. 358-359 -Quick Lab: p. 353 Brainpop.com “Electromagnets”	Experiment with an electromagnet Make an electromagnet: http://www.sciencebob.com/experiments/electromagnet.php Electromagnet Game: http://www.harcourtschool.com/activity/electromagnets/ TE: Be a Scientist: pp. 358-359	<input type="checkbox"/> 0407.12.2 Design an experiment to investigate how a simple electromagnet affects common objects.	TE-Reading Skill: Draw Conclusions TE-Math Link: p. 333 Rounding Charges TE-Social Studies Link: p. 333 Learn About Ancient Science TE-Art Link: p. 345

<p>GLE 0407.12.3 Explain how electricity in a simple circuit requires a complete loop through which current can pass.</p>	<p>What connections are needed to allow an electrical current to pass through?</p>	<p>TE: Ch. 8, Lesson 2, pp. 336-345 -Tennessee: A Closer Look: pp. 240-241; 242-243 -Be a Scientist: pp. 344-345 -Be a Scientist: pp. 346-347</p> <p>Interactive Activity: “Engineering Interact - Silicon Spies” http://engineeringinteract.org/resources/siliconspies/link.htm</p> <p>Lesson-“Act Out an Electric Circuit”: http://www.teachersdomain.org/resource/phy03.sci.phys.mfe.lp_electric/</p> <p>Make an Electric Circuit Online: http://gwydir.demon.co.uk/jo/elect/index.htm</p>		<p>□0407.12.3 Describe how electricity passes through a simple circuit that includes a battery, wire, switch, and bulb.</p>	<p>TE-Reading Skill: Cause & Effect</p> <p>TE-Math Link: p. 345 Distance & Speed</p> <p>Plant the Seed – Career: Electrician</p>
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4th Grade Science 4th Nine Week Curriculum Guide

Developed Summer 2009

Academic Vocabulary: 4th Grade Review: cell, predator, prey, offspring, trait, life cycle 5th Grade Preview: cell, cell membrane, cytoplasm, nucleus, cell wall, mutualism, commensalism, parasitism, photosynthesis, heredity, inherited trait

Life Science - Review 4 th Grade GLEs/Preview 5 th Grade GLEs			Time Frame: 4 th Nine Weeks		
Grade Level Expectations (GLEs)	Sample Essential Question	Resources:	Common Experiences	Checks for Understanding	Integrations/Connections including inquiry, technology, and engineering. (* used continually throughout the curriculum.)
<p>Review: GLE 0407.1.1 Recognize that cells are the building blocks of all living things.</p>	<p>What are plants and animals made of?</p>	<p>See 4th Grade Curriculum Guide p. 1</p>		<p><input type="checkbox"/> 0407.1.1 Use illustrations or direct observations to compare and contrast the basic structures of plant & animal cells.</p> <p><input type="checkbox"/> 0407.1.2 Create a basic model of the cell that illustrates different cell structures and describes their functions.</p>	
<p>Preview for 5th Grade: GLE 0507.1.1 Distinguish between the basic structures and <u>functions of plant and animal cells.</u></p>	<p>What is the difference between plant and animal cell parts and the functions they do?</p>	<p>Cell Lesson Plan: http://www.fi.edu/learn/heart/enrichment/activity_the-cell.html</p> <p>Brainpop.com "Cells"</p>		<p><input type="checkbox"/> 0507.1.1 Label drawings of plant and animals cells.</p> <p><input type="checkbox"/> 0507.1.2 Compare and contrast the basic structures & functions of plant and animal cells.</p>	

<p>Review: GLE 0407.3.1 Demonstrate that plants require light energy to grow and survive.</p>	<p>How does light energy affect a plant's growth and survival?</p>	<p>See 4th Grade Curriculum Guide p. 3</p>		<p><input type="checkbox"/> 0407.3.3 Identify how a variety of organisms meet their energy needs.</p>	
<p>Preview for 5th Grade: GLE 0507.3.1 Demonstrate how all living things rely on the process of <u>photosynthesis</u> to obtain energy.</p>	<p>How do plants use photosynthesis to obtain energy?</p>	<p>Photosynthesis Animated Diagram: http://www.biology.ualberta.ca/facilities/multimedia/uploads/alberta/Photo.html</p> <p>Photosynthesis Animated Presentation: http://www.harcourtschool.com/activity/science_up_close/512/deploy/interface.html</p>		<p><input type="checkbox"/> 0507.3.1 Identify the cell structures that enable plants to conduct photosynthesis.</p> <p><input type="checkbox"/> 0507.3.2 Design a graphic organizer that illustrates the difference between plants and animals in the movement of food energy through an ecosystem.</p>	
<p>Review: GLE 0407.3.2 Investigate different ways that organisms meet their energy needs.</p>	<p>What are the different ways that organisms get the energy they need?</p>	<p>See 4th Grade Curriculum Guide p. 3 & 4</p>		<p><input type="checkbox"/> 0407.3.1 Create a food web that illustrates the energy relationships between plants and animals and the key issues or assumptions found in the model.</p>	

				<input type="checkbox"/> 0407.3.2 Classify organisms as carnivores, herbivores, or omnivores.	
Preview for 5th Grade: GLE 0507.2.1 Investigate different <u>nutritional relationships</u> among organisms in an ecosystem.	What are the relationships of organisms in obtaining food for energy?			<input type="checkbox"/> 0507.2.1 Evaluate <u>producer/consumer, predator/prey, and parasite/host relationships</u> . <input type="checkbox"/> 0507.2.4 Analyze basic information from a body of text to identify key issues or assumptions about the relationships among organisms in an ecosystem.	
Preview for 5th Grade: GLE 0507.2.2 Explain how organisms interact through <u>symbiotic, commensal, and parasitic relationships</u> .	What kinds of relationships do organisms share?	Symbiotic Information & Exs: http://necsi.org/projects/evolution/co-evolution/symbiosis/html Commensalism Information & Examples: http://www.nearctica.com/ecology/pops/commens.htm		<input type="checkbox"/> 0507.2.2 Classify interspecific relationships within an ecosystem as mutualism, commensalism, or parasitism. <input type="checkbox"/> 0507.2.3 Create a simple model illustrating the interspecific relationships within an ecosystem.	

		Parasites Information & Examples: http://www.saburchill.com/ans02/chapters/chap012.html			
Review: GLE 0407.4.1 Recognize the relationship between reproduction and the continuation of a species.	How does reproduction help a species survive?	See 4 th Grade Curriculum Guide p. 4 & 5		<input type="checkbox"/> 0407.4.1 Design a simple demonstration that illustrates the relationship between reproduction and survival of a species.	
Preview for 5th Grade: GLE 0507.4.1 Describe how <u>genetic information is passed from parents to offspring</u> during reproduction.	How is genetic information passed along during reproduction?			<input type="checkbox"/> 0507.4.1 Explain how genetic information is transmitted from parents to offspring. <input type="checkbox"/> 0507.4.2 Create a chart that compares hereditary and environmental traits.	