


Sixth Grade Science Curriculum Bundle # 7

Title		Suggested Dates
Ecosystems		January 5-January 29 (16 days)

Big Idea/Enduring Understanding	Guiding Questions
Organisms interact with their environment.	<p>How does an organism react to internal stimuli/ external stimuli?</p> <p>How does an organism interact with its environment?</p> <p>How can we model the transfers of energy that happen in an ecosystem?</p> <p>What happens to the organism, population, community, ecosystem, and/or biosphere if natural processes are interrupted?</p>

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

Knowledge & Skills with Student Expectations	Specificity & Examples	Suggested Resources (Read the note above)
<p>6.12 The student knows that the responses of organisms are caused by internal or external stimuli.</p> <p>6.12A Identify responses in organisms to internal stimuli such as hunger or thirst</p>	<p>Including:</p> <p>--- Animals</p> <ul style="list-style-type: none"> • Hunger-stomach growling • Thirst-dry mouth • Drowsiness-yawning • Pain-grimace, growl <p>--- Plants</p> <ul style="list-style-type: none"> • Dry/droopy leaves 	<p>Vocabulary: internal stimuli, external stimuli, tropism, biotic, abiotic, food chain, food web, producer, consumer, decomposer, energy pyramid, ecosystem, organism, population, community, biosphere</p> <p>AVID Activity- Writing in Science pages 22-23 “Pre-write and Quickwrite”</p> <p>Holt Textbook- Wiggly Worm Lab page 262.(worms from local store are the best)</p> <p>http://www.slideshare.net/sth215/stimulus-and-response PPT on Stimulus and Response</p>
<p>6.12 The student knows that the responses of organisms are caused by internal or external stimuli.</p> <p>6.12B Identify responses in organisms to external stimuli.</p>	<p>Including:</p> <p>--- The presence or absence of heat</p> <ul style="list-style-type: none"> • Shivering • Panting/sweating • Transpiring <p>--- The presence or absence of light</p> <ul style="list-style-type: none"> • Pupil dilation • Phototropic <p><u>Teacher Note:</u> Include examples from both plants and animals</p>	<p>Organisms Respond to Their Environment- Gateway TE 137-144</p> <p>Keeping Things in Balanced-Gateway TE page 142 SE pages 213-215</p>

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<p>6.12 The student knows that the responses of organisms are caused by internal or external stimuli.</p> <p>6.12C Identify components of an ecosystem to which organisms may respond.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Describe biotic and abiotic parts of an ecosystem in which organisms interact --- Diagram the levels of organization within an ecosystem, including organism, population, community, ecosystem, and biosphere. 	<p>http://www.mesquiteisd.org/academy/documents/Ecology_ppt#290 PPT on Biotic and Abiotic</p> <p>http://www2.ccsd.ws/sbfaculty/team8e/jecole/Science/abiotic_vs_.htm Comparing Biotic and Abiotic</p> <p>http://www.coldwater.k12.mi.us/nicholsk/courses/chs/ana/levelorg.htm Organization of living things.</p> <p>http://www.mysciencebox.org/ecoorg Ecosystem Organization</p>
<p>6.8 The student knows that complex interactions occur between matter and energy.</p> <p>6.8C Describe energy flow in living systems.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Food chains --- Food webs <ul style="list-style-type: none"> • Identify the relationship among producers, consumers, scavengers and decomposers. --- Energy pyramid <ul style="list-style-type: none"> • Explain energy loss, • Explain that animals are consumers because they must eat other organisms for food <p><u>Teacher Note:</u> Emphasis on the transfer of energy from organism to organism, beginning with the energy of the sun transforming into chemical energy through photosynthesis.</p>	<p>Technology: http://www.mysciencebox.org/foodchain Food Chain, Food Web Activity</p> <p>Project Wild Activities: Shrinking Habitat page 310 and Energy Pipeline page 105.</p> <p>Design a variety of food-web collage that illustrate the energy flow within living systems found in the schoolyard, in an ocean, or in a classroom aquarium or terrarium.</p> <p>Internet Activity: Textbook TE page 280- Park Ecology. http://www.usoe.k12.ut.us/curr/Science/sciber00/8th/energy/sciber/ecosys.htm Energy Flow</p>
<p>6.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>6.1A Demonstrate safe practices during field and laboratory investigations.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Safe practice handling organisms --- Safe practices with lab equipment --- Continue to follow District Safety Contract --- Continue to operate in accordance with the Texas Safety Standards <p><u>Teacher Note:</u> Safety skills and process TEKS should be embedded and reinforced throughout the year.</p>	<p>Texas Safety Standards</p>
<p>6.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>6.1B Make wise choices in the use and conservation of resources and the disposal and recycling of materials.</p>	<p>Including :</p> <ul style="list-style-type: none"> --- Recycling of lab materials 	<p>http://www2.scholastic.com/browse/lessonplan.jsp?id=1102 Everything is connected</p>

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<p>6.2 Uses scientific methods during fields and laboratory investigations.</p> <p>6.2A Plan and implement descriptive and simple experimental investigations, including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Independent and dependent variables --- Controls --- Procedures --- Materials --- Using a standard lab report format <p><u>Teacher Note:</u> Emphasize that not all parts of scientific method may be used for every investigation and the ones that are used depends on the task.</p>	<p>AVID Activity- Writing in Science pages 55-94 “Experimental Design Lab Report Activities”</p>
<p>6.2 Uses scientific methods during fields and laboratory investigations.</p> <p>6.2B Collect information by observing and measuring.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Collecting information using the metric system <ul style="list-style-type: none"> • Introduce metric system --- Pre-AP: Emphasis on using probeware in a variety of situations <p><u>Teacher Note:</u> Measurement exercises should progress across the middle school grade levels and begin by developing conceptual understanding. In sixth grade it is most important to learn the different metric units (meter, kilogram, liter, etc.) and develop an intuitive sense of the size of them (a meter is about the height of a doorknob, a paperclip is about 1 gram, etc.)</p> <p><i>New TEK 2010-2011-collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers.</i></p>	<p>AVID Activity- Writing in Science pages 26-28 “Observation Narrative”</p>
<p>6.2 Uses scientific methods during fields and laboratory investigations.</p> <p>6.2C Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Look for trends and/or patterns specific in the data and/or graph 	<p>http://www.algebralab.org/practice/practice.aspx?file=Reading_PrimaryProductivity.xml graphing practice</p> <p>AVID Activity- Writing in Science pages 29-30 “Comparative Analysis”</p>
<p>6.2 Uses scientific methods during fields and laboratory investigations.</p> <p>6.2D Communicate valid conclusions.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Relate conclusion to hypothesis/problem --- Identify sources of error/ways to improve investigation --- Communicate conclusion effectively in writing 	<p>AVID Activity- Reading in Science pages 111-132 “Additional Active Reading Graphic Organizers”</p>

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<p>6.2 Uses scientific methods during fields and laboratory investigations.</p> <p>6.2E Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Organization of data <ul style="list-style-type: none"> • data charts --- Graphing data-bar graph & line graph <ul style="list-style-type: none"> • label each axis with name and units • provide a descriptive title --- Identify appropriate use of different types of data representation 	<p>http://my.hrw.com/sh/he6_0030390796/teacher/osp/data/chap06/sec3/map_gr_lab.pdf Ecosystems</p>
<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3A Analyze, review, and critique scientific explanations, including hypotheses and theories as to their strengths and weaknesses using scientific evidence and information.</p>	<p><u>Teacher Note:</u></p> <ul style="list-style-type: none"> --- Emphasize the nature of scientific explanations: testability, repeatability, evidence, predictive nature --- Relate to labs throughout the year 	
<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3B Draw inferences based on information related to promotional materials for products and services.</p>	<p>Such as:</p> <ul style="list-style-type: none"> ---promotional research related to ecosystems 	
<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3C Represent the natural world using models and identify their limitations.</p>	<p>Such as:</p> <ul style="list-style-type: none"> --- Conceptual <ul style="list-style-type: none"> • Food Web/Chain • Scientific Method --- Mathematical <ul style="list-style-type: none"> • Graphs to make predictions --- Physical – Such as <ul style="list-style-type: none"> • Food Web/Chain • Biomes/ Ecosystem <p><u>Teacher Note:</u> Use models to represent aspects of the natural world and identify advantages and limitations of models such as size, scale, properties, and materials</p>	<p>Develop a conceptual model of a food web and/or food chain.</p> <p>Build a Food Web http://teacher.scholastic.com/activities/explorer/ecosystems/be_an_explorer/map/form_wildcats.htm</p>
<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3D Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p>Such as:</p> <ul style="list-style-type: none"> --- Current events on human impact on ecosystems 	<p><u>AVID Activity:</u> Writing in Science page 24 “Brief Autobiography”.</p>

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<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3E Connect Grade 6 science concepts with the history of science and contributions of scientists.</p>	<p>Such as: ---Scientists (biologist, ecologist, conservationist, etc.)</p>	
<p>6.4 Knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>6.4A Collect, analyze, and record information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, timing devices, hot plates, test tubes, safety goggles, spring scales, magnets, balances, microscopes, telescopes, thermometers, calculators, field equipment, compasses, computers, and computer probes.</p>	<p>Including: --- Journals/notebooks --- Data collection tools as appropriate</p> <p><u>Teacher Note:</u> <i>Use appropriate tools to collect, record, and analyze information, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, triple beam balances, microscopes, thermometers, calculators, computers, timing devices, and other equipment as needed to teach the curriculum</i></p>	
<p>6.4 Knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>6.4B Identify patterns in collected information using</p>	<p>--- Use descriptive statistics including frequency, range, mean, median, and mode</p> <p><u>Teacher Note:</u> Data needs to be in metric system and decimals rather than fractions.</p>	
<p>6.5 The student knows that systems may combine with other systems to form a larger system.</p> <p>6.5B Describe how the properties of a system are different from the properties of its parts.</p>	<p>Including: --- Systems -properties of parts and properties of whole:</p> <ul style="list-style-type: none"> • Food Web/Chain • Ecosystems <ul style="list-style-type: none"> • Species • Population • Community • Biosphere 	<p>http://trc.ucdavis.edu/biosci10v/bis10v/media/ch01/organization.html Parts that make the whole animation.</p>