


8th Grade Science Curriculum Bundle #10

Title		Suggested Dates
Earth Transitions (Geologic Time) and TAKS review		3/22-4/16 (18 days)

Big Idea/Enduring Understanding	Guiding Questions
Species change over time by a process called evolution and evolution results in a diversity of life on Earth. Within this diversity, there are patterns of commonality. The movement of Earth’s lithospheric plates cause both slow changes on the Earth’s surface like the formation of mountains and ocean basins as well as rapid changes like volcanic eruptions and earthquakes.	What natural processes create observable changes/structures on the Earth’s surface that enable us to determine the internal energy sources present? What evidence suggests that species change over time? What Earth processes and catastrophes in Earth’s history continue today?

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)
Teacher Note: Beginning the second week in April, 8.6A/B will be covered prior and/or during TAKS review. These objectives will be re-visited in more depth during Bundle 12.		
Teacher Note: TELPAS writing samples will need to be collected during this bundle.		
<p>8.14 The student knows that natural events and human activities can alter Earth systems.</p> <p>8.14A Predict land features resulting from gradual changes such as beach erosion, land subsidence, and <u>mountain building</u> and <u>continental drift</u>.</p>	<p>Features result from:</p> <ul style="list-style-type: none"> • chemical and mechanical weathering • deposition • erosion • Theory of Plate Tectonics • stress • uplift <p>Include also:</p> <ul style="list-style-type: none"> • Geological columns • Superposition • Fossils • Law of cross-cutting/superposition • Unconformities <p><u>Teacher Note:</u> Review 7.14B-regional erosional deposition and weathering</p>	<p><u>VOCABULARY:</u> chemical weathering, geology, geologist, paleontology, paleontologist, physical/mechanical weathering, erosion, deposition, plate tectonics, Ring of Fire, dike, sill, pluton, plate boundary, divergent, convergent, Mid Oceanic Ridge, subduction, hot spot, uplift, stress, encroachment, Pangea, Law of Cross Cutting, Law of Superposition, geologic column, unconformity, disconformity, correlation, fault, strike-slip fault, intrusion, fossil, relative dating, absolute dating, radiometric, Catastrophism, and Uniformitarianism.</p> <p>AVID Activity- Writing in Science pages 22-23 “Pre-write and Quickwrite”</p> <p>CORE ACTIVITY: Cross Cutting Sequencing #1-7 or its equivalent</p> <p><u>PREAP CORE:</u> LTF # 41: Dynamic Earth Life/Earth p. 708</p>

8th Grade Science Curriculum Bundle #10

	<p><i>Relate plate tectonics to the formation of crustal features.</i></p> <p><i>Interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering.</i></p>	<p>PREAP: Google Earth Activities</p> <p>Geological Time Scale (adding machine tape)</p> <p>Enchanted Learning: Plate Tectonics</p> <p>Observing Convection Currents @ http://science-class.net</p> <p>Relative Dating Moon</p> <p>Preventing Soil Erosion ATE p. 494</p> <p>Soil Particle Size</p> <p>Soil Texture Analysis or Sediments In A Bottle Lab</p> <p>Geologic Time Travel Agency Activity</p>
<p>8.14 The student knows that natural events and human activities can alter Earth systems.</p> <p>8.14B Analyze how natural or human events may have contributed to the extinction of some species.</p>	<p>Including:</p> <p>---Catastrophic & gradual changes</p> <ul style="list-style-type: none"> • Volcanoes • Earthquakes • Meteorites <p>--- Climatic change</p> <ul style="list-style-type: none"> • Flooding • Drought <p>--- Human events</p> <ul style="list-style-type: none"> • Encroachment • Over hunting • Pollution • Conservations <p><u>Teacher Note:</u> Review TEK 8.7B including properties of waves as they travel through solid Earth.</p>	
<p>8.14 The student knows that natural events and human activities can alter Earth systems.</p> <p>8.14C Describe how human activities have modified <u>soil</u>, water, and air quality.</p>	<p>Including:</p> <p>---deforestation</p> <p>---flash flooding</p>	

8th Grade Science Curriculum Bundle #10

<p>8.12 The student knows that cycles exist in Earth systems.</p> <p>8.12C Predict the results of modifying the Earth's nitrogen, water, and <u>carbon cycles</u>.</p>	<p>Including: --- Predict how modifications in these cycles would affect human or plant life.</p> <p>Such as: --- How carbon plays a role in Carbon-14 dating</p> <p><u>Teacher Note:</u> Review nitrogen cycle again.</p>	<p>Holt Math Skills for Science #36: Radioactive Decay & Half Life</p> <p>CORE ACTIVITY: Carbon Cycle Game @ http://www.windows.ucar.edu/earth/climate/carbon_cycle.html or its equivalent</p> <p>Pollution resources (subfolder)</p>
<p>8.11 The student knows that traits of species can change through generations and that the instructions for traits are contained in the genetic material of the organisms.</p> <p>8.11B Distinguish between inherited traits and other characteristics that result from interactions with the environment.</p>	<p>Including: --- Natural selection</p> <ul style="list-style-type: none"> • Seasonal changes • Geographical changes • Catastrophic events <p><u>Teacher Note:</u> Emphasis here should be on the difference between inherited traits that arise over time in species as a result of environmental interactions and characteristics of individual organisms that are shaped by their interactions with the environment.</p> <p><i>Explore how short- and long-term environmental changes affect organisms and traits in subsequent populations.</i></p>	<p>Natural Selection Game</p> <p>Natural Selection</p> <p>Discuss flora and fauna changes on Geologic Time Scale</p>
<p>8.1 The student conducts field and laboratory investigations using safe, environmentally appropriate and ethical practices.</p> <p>8.1A Demonstrate safe practices during field and laboratory investigations.</p>	<p>Including: --- Lab Cleanup Procedures --- Chemical and waste disposal --- Equipment cleaning and storage --- Safety contract</p> <p>In accordance with the Texas Safety Standards: Pflugerville ISD :: Online Curriculum :: Science</p> <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>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</p> <p>8.2A Plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology.</p>	<p>Such as: --- design their own experiments --- Emphasis should be on scientific methods and should build understanding of the variety of methods and their suitability for various tasks.</p> <p><u>Teacher Note:</u> It is recommended that students create and design at least 2 labs/experiments.</p>	<p>AVID Activity- Writing in Science pages 55-94 “Experimental Design Lab Report Activities”</p>

8th Grade Science Curriculum Bundle #10

<p>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</p> <p>8.2B Collect information by observing and measuring.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Measuring length using metric ruler --- Using dimensional analysis to convert from English to metric units --- (Pre-AP: Emphasis on using probeware in a variety of situations) <p>Teacher Note: Measurement exercises should progress across the middle school grade levels and begin by developing conceptual understanding. In 8th grade, students can begin to convert from one unit to another.</p>	<p>AVID Activity- Writing in Science pages 26-28 “Observation Narrative”</p>
<p>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</p> <p>8.2C Organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- graph interpretation and extrapolation --- predicting outcomes based on data tables <p>Such as:</p> <ul style="list-style-type: none"> --- seismic data 	<p>AVID Activity- Writing in Science pages 29-30 “Comparative Analysis”</p>
<p>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</p> <p>8.2D Communicate valid conclusions.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Experimental conclusions --- Supporting conclusions with data --- Analyze error sources and fix experiment to reduce outside variables --- Graph/Chart/Table extrapolation for conclusion --- Analysis of graphs 	<p>AVID Activity- Reading in Science pages 111-132 “Additional Active Reading Graphic Organizers”</p>
<p>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</p> <p>8.2E Construct graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.</p>	<p>Such as</p> <ul style="list-style-type: none"> --- Bar graphs, line graphs, pie charts, data tables, <u>topographic maps</u> and determine which is best for each set of data. 	<p>Topo Map Activity</p> <p>To Topo Two</p> <p>Edible School Yard</p> <p>Topographic Maps Power point (duplicated from previous bundle)</p>
<p>8.3 The student uses critical thinking and scientific problem solving to make informed decisions.</p> <p>8.3A Analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Pangea --- Catastrophism --- Uniformitarianism --- Critique a conclusion of a modeled experiment. <p>Teacher Note: Current event analysis that critiques a scientific explanation. Relate to labs throughout the year. Should emphasize the nature of scientific explanations: testability, repeatability, evidence, and predictive nature.</p>	<p>Continents Adrift: An Intro to Continental Drift and Plate Tectonics @ United Streaming</p>

8th Grade Science Curriculum Bundle #10

<p>8.3 The student uses critical thinking and scientific problem solving to make informed decisions.</p> <p>8.3C Represent the natural world using models and identify their limitations.</p>	<p>Including: --- Distinguish between limitations and advantages of models</p> <p>Such as: ---Geological features ---Stratigraphic models ---Earth layer model</p> <p><i>Use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature.</i></p> <p><i>Identify advantages and limitations of models such as size, scale, properties, and materials.</i></p>	<p><u>AVID Activity:</u> Writing in Science page 24 “Brief Autobiography”.</p>
<p>8.3 The student uses critical thinking and scientific problem solving to make informed decisions.</p> <p>8.3D Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p><u>Teacher Note:</u></p> <p>Do a current event impact analysis that looks at how scientific research has impacted thought, society and the environment. Such as how radiometric dating techniques impact the age of fossils and rocks.</p>	
<p>8.3 The student uses critical thinking and scientific problem solving to make informed decisions.</p> <p>8.3E Connect Grade 8 science concepts with the history of science and contributions of scientists.</p>	<p>Such as: --- Hutton, Lyell, Wegener, Darwin, Luis Alvarez</p>	
<p>8.4 The student knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>8.4A Collect, record, and analyze information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, water test kits, and timing devices.</p>	<p>Including: --- Google Earth --- GPS</p> <p><i>Use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, anemometers, psychrometers, spectrosopes, and other equipment as needed to teach the curriculum.</i></p>	
<p>8.4 The student knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>8.4B Extrapolate from collected information to make predictions.</p>	<p>Such as: --- extrapolating using graph and data tables to predict expected results.</p>	<p>How Big Was That Quake</p> <p>Particle Velocity Graph</p> <p>Science Graphing Pack -The Speed of Earthquake Waves Graph -Temperature and Pressure Within The Earth Graph</p>