


Seventh Grade Science Curriculum Bundle #8

Title		Suggested Dates
Biomes & Adaptations		Feb1-Feb19 (13 days)

Big Idea/Enduring Understanding	Guiding Questions
Organisms adapt to different ecosystems around the world.	How does an ecosystem recover after a catastrophic event? How does human use of resources affect the area from which they are harvested? What is the effect on the entire biosphere?

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>7.12 The student knows that there is a relationship between organisms and the environment.</p> <p>7.12B Observe and describe how organisms including producers, consumers, and decomposers live together in an environment and use existing resources.</p>	<p>Including</p> <ul style="list-style-type: none"> ---Identify ecosystems and resources in ecosystems ---Competition for resources --- Sun is the energy source that drives an ecosystem --- Photosynthesis & Cellular respiration are dependant cycles for all organisms w/ ecosystem(related to chemistry 7.8B) --- primary and secondary consumers --- identify and describe the producers, consumers and decomposers in a food web/food chain 	<p>Vocabulary: Producers, Consumers, Decomposers, Ecosystems, Cellular Respiration, Primary Consumer, Secondary Consumers, Biomes, Habitats, Adaptations, Biodiversity, Primary Succession, Secondary Succession, Food Web and Food Chain</p> <p>Ecosystem Notes PPT & Ecosystem Blank Notes</p> <p>Technology-Students will create a power point quiz game that contains question and answer slides this topic.</p> <p>AVID Activity- Writing in Science pages 22-23 “Pre-write and Quickwrite”</p>
<p>7.12 The student knows that there is a relationship between organisms and the environment.</p> <p>7.12C Describe how different environments support different varieties of organisms.</p>	<p>Including</p> <ul style="list-style-type: none"> --- Biomes, ecosystems, habitats --- Species adaptations (plants and animals) <p>Such as;</p> <ul style="list-style-type: none"> --- describe how biodiversity contributes to the sustainability of an ecosystem --- analyze how adaptations help different species live in different biomes: <ul style="list-style-type: none"> • Tundra • Taiga • Temperate forest 	<p>Biome Project</p> <p>Biomes and Climate Activities & Glossary PDF & WORD – found in folder titled: Biomes and Climate</p> <p>Earth’s Biomes</p>

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	<ul style="list-style-type: none"> • Temperate grasslands/savannas • Mediterranean • Tropical • Desert • Freshwater • Marine <p><u>Teacher Note:</u> It is not required to know all of the biomes. The emphasis should be on describing the characteristics of a biome and showing adaptations of the organisms living within it. Examples should include those that are most familiar to students.</p> <p><i>Observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms</i></p>	
<p>7.12 The student knows that there is a relationship between organisms and the environment.</p> <p>7.12D Observe and describe the role of ecological succession in ecosystems.</p>	<p><u>Including</u></p> <p>--- Role is to ‘normalize’ the habitat by creating conditions for growth</p> <p><u>Define types of ecological succession</u></p> <ul style="list-style-type: none"> • Primary succession’s role is to form soil from pioneer plants like mosses and lichens, algae, fungus and other abiotic factors like wind and water • Secondary succession is a process started by an event (ex. Fire, hurricane, other environmental disturbances) that reduces an already established ecosystem to a smaller population of species. <p>--- Recognize climax communities</p> <ul style="list-style-type: none"> • Biomes are often identified with particular patterns of ecological succession and climax vegetation such as hardwoods in forests. <p>--- Equilibrium</p> <p><u>Teacher Note:</u> This SE is on going throughout the Earth changes and ecosystem , mention, and build on it appropriately</p>	<p>Succession Notes PPT & Succession Notes</p> <p>Succession – Reading Worksheet</p> <p>Succession Worksheet</p> <p>Travel Brochure-Biomes</p> <p>Land Biomes Worksheet</p>

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<p>7.8 The student knows that complex interactions occur between matter and energy.</p> <p>7.8B Identify that radiant energy from the Sun is transferred into chemical energy through the process of photosynthesis.</p>	<p>Including</p> <p>--- Recognize and Identify the components photosynthesis --- Terminology: chlorophyll, glucose, starch</p> <p>Teacher note: At this grade level, it is most appropriate for students to learn photosynthesis as a word equation: Carbon dioxide + water + sun's radiant (light) energy → glucose + oxygen + water</p> <p>Teacher note: In 8th grade students will learn chemical formulas and the photosynthesis reaction will be formalized in symbols.</p>	<p>Photosynthesis PPT Photosynthesis Cards</p>
<p>7.6 The student knows that there is a relationship between force and motion.</p> <p>7.6C Relate forces to basic processes in living organisms.</p>	<p>Including</p> <p>--- Use the concepts of force and energy to explain processes in living organisms</p> <ul style="list-style-type: none"> • Emergence of seedlings & geotropisms (ref7.5A) <p>Teacher Note: This should be a core activity in which application of the concepts of force is applied to specific examples in living organisms.</p> <p><i>Demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism</i></p>	
<p>7.5 Knows that an equilibrium of a system may change.</p> <p>7.5B Observe and describe the role of ecological succession in maintaining equilibrium in an ecosystem.</p>	<p>Including</p> <p>--- Ecological succession</p> <ul style="list-style-type: none"> • Primary succession • Secondary succession • Opportunistic plants • Climax communities <p>Effects of commercial development</p> <p><i>Observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds</i></p>	<p>Examining the Stages in Ecological Succession</p>
<p>7.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>7.1A Demonstrate safe practices during field and laboratory investigations.</p>	<p>Including</p> <p>--- Indoor/Outdoor safety --- Recognize problems and how to prevent accidents --- Recognize safety symbols and what appropriate action to take --- Safety contract In accordance with the Texas Safety Standards</p>	<p>Texas Safety Standards</p>

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	<u>Teacher Note:</u> Safety skills and process TEKS should be embedded and reinforced throughout the year	
<p>7.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>7.1B 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"> --- Knowledge of items appropriate for recycling, reuse, disposal 	
<p>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2A 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"> --- probeware for data collection --- using a standard lab report format --- manipulated and responding variables <p><u>Teacher Note:</u> Emphasis should be on scientific methods and should build understanding of the variety of methods and their suitability for various tasks</p>	AVID Activity- Writing in Science pages 55-94 “Experimental Design Lab Report Activities”
<p>7.6 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2 B Collect information by observing and measuring.</p>	<ul style="list-style-type: none"> --- --- (Pre-AP: May emphasize using probeware in a variety of situations) --- Measurement using a variety of metric units --- conversion from one metric unit to another --- Using data tables to graph data --- Using graphs to create data tables <p><u>Teacher Note:</u> Measurement exercises should progress across the middle school grade levels and begin by developing conceptual understanding. In 7th grade additional units can be learned, as well as the metric prefix system.</p>	AVID Activity- Writing in Science pages 26-28 “ Observation Narrative”
<p>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2 C Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.</p>	<p>Including</p> <ul style="list-style-type: none"> --- Identify the relationship between independent variable and dependent variable as observed from data collection/data tables. 	AVID Activity- Writing in Science pages 29-30 “Comparative Analysis”
<p>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2 D Communicate valid conclusions.</p>	<p>Including</p> <ul style="list-style-type: none"> --- writing in complete sentences --- paragraphs that utilize a restatement of the hypothesis --- communicating effectively in writing --- identify sources of error and estimate their effect 	AVID Activity- Reading in Science pages 111-132 “ Additional Active Reading Graphic Organizers”

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<p>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2 E Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.</p>	<p>Including --- Spreadsheets and Graphs --- Graphing calculators or computer software with probeware</p>	
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3A Analyze, review, and critique scientific explanations, including hypotheses and theories as to their strengths and weaknesses using scientific evidence and information.</p>	<p>Teacher Note: Correlate to strengths and limitations of models.</p> <p>Relate to labs throughout the year. Should emphasize the nature of scientific explanations: testability, repeatability, evidence, and predictive nature.</p>	
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3B Draw inferences based on data related to promotional materials for products and services</p>	<p>Promotional Material related to biomes</p>	
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3 C Represent the natural world using models and identifies their limitations.</p>	<p>Such as --- Compare and contrast models used with the real world item or concept under investigation ---Models used to show different biomes</p> <p><i>use models to represent aspects of the natural world such as human body systems and plant and animal cells; identify advantages and limitations of models such as size, scale, properties, and materials;</i></p>	
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3 D Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p>--- Current events- related to biomes, or ecological succession.</p>	
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3 E Connect Grade 7 science concepts with the history of science and contributions of scientists.</p>	<p>Including: Biologist, ecologist and environmentalist.</p>	<p>AVID Activity: Writing in Science page 24 “Brief Autobiography”.</p>

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<p>7.4 Knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>7.4A 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: triple beam balance, hand lens, compound microscope; stereoscope; temperature probes, pH probe, timers; stopwatches</p> <p><i>use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other equipment as needed to teach the curriculum</i></p>	
<p>7.4 Knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>7.4B collect and analyze information to recognize patterns such as rates of change</p>	<p>--- Calculate range --- Calculate average --- Use decimals system rather than fractions</p> <ul style="list-style-type: none"> • Mean • Median • mode • mode <p><u>Teacher Note:</u> Be prepared to teach some math skills throughout the year.</p>	
<p>7.5 Knows that equilibrium of a system may change.</p> <p>7.5 A Describe how systems may reach equilibrium such as when a volcano erupts.</p>	<p>Such as ---Photosynthesis --- Cellular Respiration</p>	