


Biology Curriculum Bundle #3

Title		Suggested Dates
Ecosystems and Biomes		10/5-10/23 (14 days)

Big Idea/Enduring Understanding	Guiding Questions
The chemical elements that make up the molecules of living things pass through food webs and are combined and recombined in different ways.	How does matter cycle through ecosystems?

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	District Specificity/Examples	Suggested Resources (See note above)
<p>12 The student knows that interdependence and interactions occur within an ecosystem.</p> <p>12A Analyze the flow of energy through various cycles. Including</p> <ul style="list-style-type: none"> • Carbon • Oxygen • Nitrogen • Water cycles 	<p><i>NOTE: Look at the flow of matter in the cycle, not so much energy.</i></p> <p><i>(12E) describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles</i></p>	<p>http://www.bottlebiology.org</p> <p>BIO_3_Closed Ecosystem</p>
<p>12 The student knows that interdependence and interactions occur within an ecosystem.</p> <p>12C Compare variations, tolerances, and adaptations of plants and animals in different biomes.</p>	<p><i>Including:</i></p> <ul style="list-style-type: none"> • Species • Niche • Ecosystem • Extinction • Abiotic and biotic factors <p><i>(12B) compare variations and adaptations of organisms in different ecosystems;</i></p>	<p>BIO_3_Chemical Cycles in the Biosphere</p>
<p>12 The student knows that interdependence and interactions occur within an ecosystem.</p> <p>12D Identify and illustrate that long-term survival of species is dependent on a resource base that may be limited.</p>	<p><i>Including:</i></p> <ul style="list-style-type: none"> • Describe the effect of a limiting factor on a population of organisms. • Food • Water • Shelter • Space 	<p>BIO_3_Chemical Cycles in the Biosphere</p> <p>BIO_3_Oh Deer(Copyright protected only Project Wild trained individuals can use)</p>

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	<p><i>(12D) recognize that long-term survival of species is dependent on changing resource bases that are limited;</i></p>	
<p>2 Uses scientific methods during fields & laboratory investigations.</p> <p>2B Collect data and make measurements with precision</p>	<p>Including the following (below) to understand the importance of scale</p> <ul style="list-style-type: none"> • Constructing data tables • Ability to read a meniscus on a graduated cylinder • Ability to use a metric ruler • Triple beam balance <p>NOTE: Discuss the difference between precision and accuracy.</p> <p><i>(2F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;</i></p>	
<p>3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>3A Analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information.</p>	<p>NOTE: Can use debates on current topics and reading/discussing current events.</p> <p><i>(3A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</i></p>	
<p>2 Uses scientific methods during fields & laboratory investigations.</p> <p>2D Communicate valid conclusions</p>	<p>Such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p> <p><i>(2H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</i></p>	

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<p>3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>3D Describe connection between biology and future careers.</p>	<p>Such as wildlife management, soil and water conservation, landscape architecture.</p>	
<p>3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>3F Research and describe the history of biology and contributions of scientists</p>	<p>Such as Rachel Carson, Jacques Cousteau.</p>	
<p>5 The student knows how an organism grows and how specialized cells, tissues, and organs develop.</p> <p>5C Sequence the levels of organization in multicellular organisms to relate the parts to each other and to the whole.</p>	<p>Including (in sequence): Atom, Molecule, Organelle, Cell, Tissue, Organ, Organ system, Organism, Population, Community, Ecosystem, Biome, Biosphere</p> <p><i>(10C) analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.</i></p>	