

St. Johns County School District
2015-2016 School Year
Course: 2002080

Advanced 7th Grade Science

St. Johns County Schools Curriculum Map Terms & Use

Text: Pearson Interactive Science Course 2. Supplement with additional materials.

Quarter: Refers to the time period during which the standard(s) should be taught.

Florida Standards for Math & Literacy: Are to be incorporated into instruction, see notes in the map for suggestions. Best practice is to provide time for close reading and analytical writing, pushing student to evaluate/analyze information. **For direct correlation of the standards to the standards within the map, visit:** <http://www.cpalms.org/>

Unit/Organizing Strand: Overarching organizational structure used to group content & concepts within the curriculum map.

Essential Questions: Overarching question(s) that will serve to guide instruction & to push the student to higher levels of thinking (critical thinking). These questions should guide students to the heart of the content.

Benchmark: Refers to the benchmark classification system number: subject area, grade level, body of knowledge, big idea & benchmark are given in the benchmark. **Ex: SC.912.P.12.1**

Standard: The knowledge that the student is expected to learn.

Comments: These are district clarifications, to guide you on some of the vague standards.

Misconceptions: These are taken from NAEP and should be used to guide instruction, these are commonly held misconceptions at MS level.

Remarks: When given, these are DOE examples for a standard.

Highlighted item: DOE indicates that this content will be tested on the 8th grade FCAT 2.0 Science exam. The benchmark clarification and/or content limits from the DOE are printed below the benchmark.

Resources/Activities: Are suggested. Media resources should be previewed by teacher to be sure that they're appropriate. Best practice is to provide inquiry and/or follow up labs or activities, non-fiction text and/or enrichment activities for foundational topics for future learning. **For resources on CPALMS, visit:** www.cpalms.org

Course# 2002080	Course: ADV 7 th gr Science	Quarter: 1 & throughout the year	Pacing: Integrate throughout the year
Unit/Organizing Strand: Florida Standards for Reading in Science and Technology			
Benchmarks	Standard		
LAFS.68.RST.1.1	Cite specific textual evidence to support analysis of science and technical texts.		
LAFS.68.RST.1.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.		
LAFS.68.RST.1.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.		
LAFS.68.RST.2.4	Determine the meaning of symbols, key terms, & other domain-specific words & phrases as they're used in a specific scientific or technical context relevant to grades 6-8 texts & topics.		
LAFS.68.RST.2.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole & to an understanding of the topic.		
LAFS.68.RST.2.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.		
LAFS.68.RST.3.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).		
LAFS.68.RST.3.8	Distinguish among facts, reasoned judgment based on research findings, & speculation in a text.		
LAFS.68.RST.3.9	Compare & contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.		

Course# 2002080	Course: ADV 7 th gr Science	Quarter: 1 & throughout the year	Pacing: Integrate throughout the year
Unit/Organizing Strand: Florida Standards for Speaking and Listening from Language Arts			
Benchmarks	Standard		
LAFS.7.SL.1.1	Engage effectively in a range of collaborative discussions (1-on-1, in groups & teacher-led) with diverse partners on grade 7 topics, texts, & issues, building on others' ideas & expressing their own clearly.		
LAFS.7.SL.1.2	Analyze the main ideas & supporting details presented in diverse media & formats (e.g., visually, quantitatively, and orally) & explain how the ideas clarify a topic, text, or issue under study.		
LAFS.7.SL.1.3	Delineate a speaker's argument & specific claims, evaluating the soundness of the reasoning & the relevance & sufficiency of the evidence.		
LAFS.7.SL.2.4	Present claims & finds, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details & examples; use appropriate eye contact, adequate volume, & clear pronunciation.		
LAFS.7.SL.2.5	Include multimedia components & visual displays in presentations to clarify claims & findings & emphasize salient points.		
ELD.K12.ELL.SI.1	English language learners communicate for social and instructional purposes within the school setting.		
ELD.K12.ELL.SC.1	English language learners communicate information, ideas and concepts necessary for academic success in the content area of Science.		

Course# 2002080	Course: ADV 7 th gr Science	Quarter: 1 & throughout the year	Pacing: Integrate throughout the year
Unit/Organizing Strand: Florida Standards for Writing in History, Science and Technical Subjects			
Benchmarks	Standard		
LAFS.68.WHST.1.1	Write arguments focused on discipline-specific content <ul style="list-style-type: none"> a. Introduce claim(s) about a topic or issue, acknowledge & distinguish the claim(s) from alternative or opposing claims, & organize the reasons & evidence logically. b. Support claim(s) with logical reasoning & relevant, accurate data & evidence that demonstrate an understanding of the topic or text, using credible sources. c. Use words, phrases, & clauses to create cohesion & clarify the relationships among claims(s), counterclaims, reasons, & evidence. d. Establish & maintain a formal style. e. Provide a concluding statement or section that follows from & supports the argument presented. 		
LAFS.68.WHST.1.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.		
LAFS.68.WHST.2.4	Produce clear & coherent writing in which the development, organization, & style are appropriate to task, purpose, and audience.		
LAFS.68.WHST.2.5	With some guidance and support from peers & adults, develop & strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose & audience have been addressed.		
LAFS.68.WHST.2.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.		

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Unit/Organizing Strand: Florida Standards for Writing in History, Science and Technical Subjects			
Benchmarks	Standard		
LAFS.68.WHST.3.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources & generating additional related, focused questions that allow for multiple avenues of exploration.		
LAFS.68.WHST.3.8	Gather relevant information from multiple print & digital sources, using search terms effectively; assess the credibility & accuracy of each source; & quote or paraphrase the data & conclusions of others while avoiding plagiarism & following a standard format for citation.		
LAFS.68.WHST.3.9	Draw evidence from informational texts to support analysis reflection, and research.		
LAFS.68.WHST.4.10	Write routinely over extended time frames time for (reflection & revision) & shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, & audiences.		

Course# 2002080	Course: ADV 7 th gr Science	Quarter: 1 & throughout year	Pacing:
Unit/Organizing Strand: Math Standards from the Florida Standards - Statistics & Probability			
Benchmarks	Standards		
MAFS.7.SP.2.4	Use measure of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. <i>For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.</i>		
MAFS.7.SP.3.5	Understand that probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely and a probability near 1 indicates a likely event.		
MAFS.8.SP.1.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a 2-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between two variables. For example: collect data from students in the class as to whether or not they have an assigned bedtime and whether or not they have assigned chores. Is there evidence that those who have an assigned bedtime also tend to have chores?		

Course# 2002080	Course: ADV 7 th gr Science	Quarter: 1	Pacing: approximately 2.5-3 weeks for “N” standards
Unit/Organizing Strand: The Practice of Science			
Essential Question(s): Why do scientists use a scientific method or process? How does one conduct a “valid” scientific experiment? What is the difference between replication by others & repetition or multiple trials?			
Benchmarks	Standards	Resources/Activities	
<p>SC.7.N.1.1 FCAT (Assessed as SC.8.N.1.1) Benchmark clarification/content limits: Students will identify test variables and or outcome variables in a given scientific investigation. Students will interpret/analyze data to make predictions/defend conclusions.</p> <p>SC.7.N.1.2 FCAT Students will differentiate between replication and repetition. Students will evaluate the use of repeated trials or replication in a scientific investigation.</p> <p>SC.7.N.1.3</p>	<p>Define a problem from 7th grade curriculum use appropriate reference materials to support scientific understanding, plan & carry out scientific investigation of various types, such as systematic observations or experiments, identify variables (independent/manipulated, control, etc.), collect & organize data (qualitative and quantitative), interpret data in charts, tables & graphics, analyze information, make predictions & defend conclusions. Comment: Teach scientific processes (inferring, observing, etc.), metric measures/units and applications for them in the beginning and throughout the year (ex.: volume, gm, meter, cm, mL). It is not necessary to teach: metric conversions, accuracy/precision, median, mode, mean, significant figures, % error, inductive/deductive reasoning.</p> <p>Differentiate replication (by others) from repetition (multiple trials).</p> <p>Distinguish between an experiment involving identification & control of variables & other forms of scientific investigation & explain that not all knowledge is derived by experimentation.</p>	<p>Media: Bozemanscience.com: “Scientific Method”</p> <p>Mr. Edmonds: “The Variables Song” http://www.youtube.com/watch?v=Hxbz656Euyw&feature=kp</p> <p>Help to teach independent/dependent variables: D R Y MIX</p>	

Course# 2002080	Course: ADV 7 th gr Science	Quarter: 1	Pacing:
Unit/Organizing Strand: The Practice of Science			
Essential Question(s): Why do scientists use a scientific method/process? How does one conduct a “valid” scientific experiment? What is the difference between observation and inference?			
Benchmarks	Standards		
<p>SC.7.N.1.4</p> <p>SC.7.N.1.5 FCAT Also assesses SC.7.N.3.2 Students will describe & or analyze common methods &/or models used in different fields of study. Students will identify how technology is essential to science and will identify the benefits/limitations of the use of scientific models.</p> <p>SC.7.N.1.6</p>	<p>Identify test variables (independent) and outcome variables (dependent) in an experiment.</p> <p>Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology and physics.</p> <p>Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.</p> <p>Connection to 6th grade: Most of the “N” standards are taught in the 6th grade.</p>		

Course # 2002080	Course: ADV 7 th grade Science	Quarter: 1	Pacing:
Unit/Organizing Strand: The Characteristics of Scientific Knowledge, The Role of Theories, Laws, Hypotheses & Models			
Essential Question(s): How do new evidence or new interpretations impact scientific knowledge? How do ideas or discoveries in science change over time? How do laws, theories & hypotheses impact the body of scientific knowledge? Why do we use scientific models?			
Benchmarks	Standards		Resources/Activities
<p>SC.7.N.3.1 FCAT Students will explain the difference between theories and laws and explain why theories may be modified but are rarely discarded.</p> <p>SC.7.N.3.2 Also assesses SC.7.N.1.5</p>	<p>Recognize & explain the difference between theories & laws & give several examples of scientific theories & the evidence that supports them.</p> <p>Identify the benefits & limitations of the use of scientific models.</p>		<p>Writing: Ask students to write a paragraph in response to the prompt: “A change of mind is sometimes seen as a sign of weakness. How is this different in science?”</p>

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 1	Pacing:
Unit/Organizing Strand: Energy Transfer & Transformations			
Essential Question(s): How does addition or subtraction of heat affect a system? What is energy and how does it transform?			
Benchmarks	Standards	Resources/Activities	
<p>SC.7.P.11.1 Assessed as SC.7.P.11.4</p> <p>SC.912.P.10.5</p> <p>SC.7.P.11.2 FCAT Also assesses SC.7.P.11.1 & 3. Students will differentiate between potential energy & kinetic energy& identify situations where energy is transformed. Students will identify & or describe examples of the law of conservation of energy.</p> <p>SC.912.P.10.1</p> <p>SC.7.P.11.3 Also assesses SC.7.P.11.2</p> <p>SC.7.P.11.4 FCAT Also assesses SC.7.P.11.1 Students will explain that adding or removing heat from a system may result in a temperature change & possibly a change of state.</p>	<p>Recognize that adding heat to or removing heat from a system may result in a temperature change & possibly a change of state. Comment: Differentiate between heat, thermal energy, temperature.</p> <p>Relate temperature to average molecular kinetic energy.</p> <p>Investigate & describe the transformation of energy from one form to another. (For example: kinetic, potential, mechanical, chemical, thermal, electrical, sound, light/electromagnetic, etc.) Connect to 6th grade: Students learned about energy transformation between kinetic & potential energy. Misconception: Kinetic energy is associated with the speed of an object.</p> <p>Differentiate among various forms of energy & recognize that they can be transformed from 1 form to another.</p> <p>Cite evidence to explain that energy cannot be created or destroyed, only changed from one form to another. Connect to 6th grade: Students learned the Law of Conservation of Energy Misconception: Energy can be created.</p> <p>Observe & describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature. Connect to 6th grade: Briefly review convection, conduction, radiation. Comment: <u>Not</u> necessary to teach about conductors/insulators.</p> <p>END OF 1ST QTR</p>	<p>Simulations: http://phet.colorado.edu/ “Energy Forms & Changes”, “Energy Skate Park”.</p> <p>Activity: Graphic organizer for showing differences/similarities for heat, thermal energy, temperature.</p> <p>Media: You Tube-Veritasium: “Misconceptions about Heat” Mr. Edmonds: “The Energy Song” http://www.youtube.com/watch?v=_uLSFigtLKg “Heat and Energy” http://www.youtube.com/watch?v=ZYuhMXmJeh4</p>	

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 2	Pacing:
Unit/Organizing Strand: Forms of Energy			
Essential Question(s): What is radiant energy & how does it travel? How do various wave lengths impact the energy? Do waves have different speeds? How does light behave?			
Benchmarks	Standards	Resources/Activities	
<p>SC.7.P.10.1 FCAT This standard will not be taught again in 8th grade. Students will identify & compare/contrast a variety of types of radiation present in the sun. They will identify/compare characteristics of and uses/applications of the electromagnetic spectrum/waves.</p> <p>SC.7.N.3.2</p> <p>SC.7.P.10.3 FCAT Also assesses SC.7.P.10.2. Students will explain that light waves can be reflected, refracted & or absorbed & explain that waves move at different speeds through different materials.</p> <p>SC.7.P.10.2 Assessed as SC.7.P.10.3</p>	<p>Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible & ultraviolet, & that white light is made up of a spectrum of many different colors. Comment: Teach wave properties (crest, trough, wavelength, amplitude, frequency) so that students can understand wave behavior. Compare/contrast the various types of radiation in the electromagnetic spectrum-students should know the order of the frequencies/wavelengths in the spectrum.</p> <p>Identify the benefits & limitations of the use of scientific models. (Example: Electromagnetic Spectrum)</p> <p>Recognize that light waves, sound waves, & other waves move at different speeds in different materials. Comment: NOT necessary to teach transverse/longitudinal waves specifically. Example: Waves move faster in solids.</p> <p>Observe & explain that light can be reflected, refracted & or absorbed. Comment: Explain the Law of Reflection, touch on the behavior of light. Not necessary to teach the types of reflection, mirrors, or lenses.</p>	<p>Media: Bozemanscience.com: "Light Waves", "Sound Waves", "Waves". (GOOD FOR ADVANCED STUDENTS) You tube: The Electromagnetic Spectrum: http://www.youtube.com/watch?v=kfS5Qn0wn2o</p> <p>Nbclearn.com Science of Summer Olympics: "Designing a Fast Pool" (waves)</p>	

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 2	Pacing:
Unit/Organizing Strand: Earth Structures			
Essential Question(s): How are the Earth's layers structured? How does matter move within the rock cycle? How do the patterns relate to landforms and surface or subsurface events?			
Benchmarks	Standards	Resources	
<p>SC.7.E.6.1 Will be assessed as SC.7.E.6.5</p> <p>SC.912.E.6.1</p> <p>SC.7.N.1.7</p> <p>SC.7.N.2.1</p> <p>SC.7.E.6.2 FCAT Also assesses SC.7.E.6.6, 6.1. Students will identify/describe steps of the rock cycle & relate to sub surface events. They will describe weathering, erosion, deposition and identify different landforms commonly found on earth, as well as the impact that humans have had on Earth.</p> <p>SC.912.E.6.2</p>	<p>Describe the layers of the solid Earth including the lithosphere, the convecting mantle, and the dense metallic liquid & solid cores.</p> <p>Describe & differentiate the layers of earth & interactions between them.</p> <p>Explain that scientific knowledge is the result of a great deal of debate & confirmation within the science community.</p> <p>Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.</p> <p>Identify patterns within the rock cycle & relate them to surface events (weathering & erosion) & sub-surface events (plate tectonics & mountain building). Comment: <u>Identify and describe</u> steps of the rock cycle. Teach the 3 rock groups, representative examples of the groups <u>not</u> necessary. Misconception: Rocks are always solid.</p> <p>Connect surface features to surface processes that are responsible for their formation. Ex: Identify various landforms (lakes, dunes, sinkholes) & describe how they form (erosion, deposition, weathering).</p> <p style="text-align: center;">END OF 2ND QUARTER</p>	<p>Model of Earth's Layers: http://www.scec.org/education/k12/learn/Plate Tectonics to Structure of the Earth.</p>	

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 3	Pacing:
Unit/Organizing Strand: Earth Structures			
Essential Question(s): How are some of Earth's structures created? What causes earthquakes & volcanic eruptions?			
Benchmarks	Standards	Resources/Activities	
<p>SC.7.E.6.5 FCAT Also assesses SC.7.E.6.1 & SC.7.E.6.7. Students will identify/describe the layers of the earth. (limited to crust, lithosphere, mantle, inner & outer core)</p> <p>SC.912.E.6.3</p> <p>SC.7.E.6.7 Assessed as SC.7.E.6.5</p> <p>SC. 7.N.3.1 FCAT Students will explain the difference between theories & laws & identify examples of each</p> <p>SC.7. E.6.4 FCAT Also assess SC.7.E.6.3. Students will identify examples or explain physical evidence that supports theories that Earth has evolved over geologic time due to natural processes. They will identify current methods for measuring the age of Earth.</p> <p>SC.7.E.6.3 Assessed as SC.7.E.6.4</p>	<p>Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes <u>both slow & rapid</u> changes in Earth's surface, including volcanic eruptions, earthquakes, & mountain building. Comment: <u>Not</u> necessary to teach landforms such as dikes, sills, etc. or the parts of or types of volcanoes (cinder cone, etc.) Not necessary to types of earthquake waves—the idea is for students to understand that these landforms result from plate movement.</p> <p>Analyze the theory of plate tectonics & identify related major processes & features as a result of the moving plates.</p> <p>Recognize that heat flow & movement of material within Earth causes earthquakes & volcanic eruptions, & creates mountains & ocean basins.</p> <p>Recognize & explain the difference between theories & laws & give several examples of scientific theories & the evidence that supports them.</p> <p>Explain & give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes. Comment: You may show geologic time scale but not necessary for students to learn.</p> <p>Identify current methods for measuring the age of Earth & its parts, including the Law of Superposition & radioactive dating. Comment: Students should know what a fossil is. <u>Not</u> necessary to teach the various types of fossils. Half-life calculations are not necessary, only the concept of half-life required.</p>	<p>Media: Bozemanscience.com "Plate Tectonics", "Law of Superposition".</p> <p>Amoeba People: Alfred Wegener Song/video clip: https://www.youtube.com/watch?v=T1-cES1Ekto</p> <p>Continental Drift: The Fixists: https://www.youtube.com/watch?v=hC1E93ITJbA</p> <p>Web resources for plate tectonics: http://pubs.usgs.gov/gip/dynamic/dynamic.html</p> <p>http://www.scec.org/education/k12/learn/</p> <p>Simulation: http://phet.colorado.edu/PlateTectonics</p>	

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 3	Pacing:
Unit/Organizing Strand: Heredity & Reproduction			
Essential Question(s): What is DNA? How does DNA pass traits from one generation to the next? How are genotypes & phenotypes important in the study of genetics/heredity? How does genetic engineering & artificial selection impact us?			
Benchmarks	Standards	Resources/Activities	
<p>SC.7.L.16.1 FCAT Also assesses SC.7.L.16.2 & SC.7.L.16.3. Students will identify and/or explain that hereditary information (DNA) contains genes located in the chromosomes of each cell and/or that heredity is the passage of these instructions from one generation to another. Students will use Punnett squares and pedigrees to determine genotypic and phenotypic probabilities. Students will compare and/or contrast general processes of sexual and asexual reproduction that result in the passage of hereditary information from one generation to another. SC.7.L.16.4</p>	<p>Understand & explain that every organism requires a set of instructions that specifies its traits that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another. Connect to 6th grade: students learned the structure & function of major organelles of the cell. DNA is located in the nucleus &/or mitochondria of every cell. Misconception: Some organisms do not have DNA. The different types of cells in our bodies contain different DNA. Genes are traits.</p> <p>Recognize & explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society & the environment.</p>	<p>Media: Bozemanscience.com: "Genetics", "Chromosomal Genetics" Amoeba Sisters-You Tube: "Structure and Function of DNA"</p> <p>Web Resources: DNA: http://www.yourgenome.org/landing_teachers.shtml</p> <p>Virtual DNA extraction lab: http://learn.genetics.utah.edu/content/labs/extraction/</p>	

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 3	Pacing:
Unit/Organizing Strand: Heredity & Reproduction, Health Promotion & Disease Prevention to Enhance Health.			
Essential Question(s): How are the processes of mitosis & meiosis crucial for the transfer of genetic information? What does a Punnett square/Pedigree tell us?			
Benchmarks	Standards	Resources/Activities	
SC.7.L.16.2 Assessed as SC.7.L.16.1	Determine the probabilities for genotype & phenotype combinations using Punnett Squares & pedigrees. Comment: Punnett squares limited to P & F1 generations, either will assess dominant or recessive traits only. (from FCAT specs)	Bozemanscience.com: "Mitosis" meiosis" Amoebasisters.com: "Mitosis & Meiosis", "Meiosis: The Great Divide"	
SC.912.L.16.2	Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, co-dominant, recessive, co-dominant, sex-linked, polygenic & multiple alleles.	Simulations: www.cellsalive.com: "Mitosis" "Cell Cycle" "meiosis"	
HE.7.C.1.7	Describe how heredity can affect personal health. Comment: Examples are acne, diabetes, anemia.	Punnett Square Practice: http://www.zerobio.com/drag_gr11/mono.htm	
SC.7.L.16.3 Assessed as SC.7.L.16.1	Compare and contrast the general processes of sexual reproduction requiring meiosis & asexual reproduction requiring mitosis.	Virtual Lab: Punnett Squares/Traits: http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html	
SC.912.L.16.16	Describe the process of meiosis including independent assortment & crossing over. Explain how reduction division results in the formation of haploid gametes or spores. END QUARTER 3		

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 4	Pacing:
Unit/Organizing Strand: Diversity & Evolution of Living Organisms			
Essential Question(s): How is fossil evidence consistent with the scientific theory of evolution? How do genetic variations & environmental factors contribute to evolution? Why is natural selection important to the evolution & survival of a species? How does inability of a species to adapt contribute to the extinction of that species?			
Benchmarks	Standards	Resources/Activities	
<p>SC.7.L.15.1 Assessed as SC.7.L.15.2</p> <p>SC.7.L.15.2 FCAT Also assesses SC.7.L.15.1 & SC.7.L.15.3. Students will identify/explain ways that genetic variation & environmental factors contribute to evolution by natural selection. Students will explain that a species' inability to adapt may contribute to the extinction of the species.</p> <p>SC.7.L.15.3 Assessed as SC.7.L.15.2.</p> <p>SC.912.L.15.13</p>	<p>Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.</p> <p>Explore the scientific theory of evolution by recognizing & explaining ways in which genetic variation & environmental factors contribute to evolution by natural selection & diversity of organisms. Comment: Students should understand the difference between variation & mutation & the relationship to adaptation (adaptation for discussions of inherited characteristics useful for survival in the environment, versus an <i>individual</i> adapting to their environment). Misconception: Population changes occur through gradual change in all members of a population, not through survival of the fittest.</p> <p>Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species. Misconception: Sudden environmental change is required for evolution to occur.</p> <p>Describe the conditions required for natural selection, including overproduction of offspring, inherited variation, & the struggle to survive, which results in differential reproductive success.</p>	<p>Media: The Simpsons: Homer Evolution https://www.youtube.com/watch?v=farIFsYmkeY&safe=active</p> <p>Bozemanscience.com: “The Origin of Life”, “Behavior & Natural Selection”.</p> <p>Khanacademy.com: “Evolution”. “The Making of the Fittest: Natural Selection & Adaptation” http://media.hhmi.org/fittest/natural_selection.html</p> <p>Natural Selection Simulation: http://www2.edc.org/weblabs/NaturalSelection/NaturalSelectionMenu.html</p> <p>Phet:https://phet.colorado.edu/en/simulation/natural-selection</p> <p>Web Resource for Evolution: http://www.cpet.ufl.edu/EIS/evol/Evol01.htm</p>	

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 4	Pacing:
Unit/Organizing Strand: Interdependence			
Essential Question(s): What are the roles and relationships among producers, consumers, and decomposers? How do mutualism, predation, parasitism, etc. affect relationships between organisms in an ecosystem? How do limiting factors impact native populations including food, shelter, water, space, disease, predation, nesting sites?			
Benchmarks	Standards	Resources	
<p>SC.7.L.17.1 Assessed as SC.7.L.17.2</p> <p>SC.912.L.15.6</p> <p>SC.912.L.17.9</p> <p>SC.7.L.17.2 FCAT Also assesses SC.7.L.17.1 & SC.7.L.17.3. Students will describe/explain roles of relationships in a food web & identify/describe limiting factors in an ecosystem & their impact on native populations.</p>	<p>Explain & illustrate the roles of & relationships among producers, consumers, & decomposers in the process of energy transfer in a food web. Comment: Students must be able to “read” a food web. Not necessary to teach food chains.</p> <p>Discuss distinguishing characteristics of the domains & kingdoms of living organisms.</p> <p>Use a food web to identify & distinguish producers, consumers & decomposers. Explain the pathway of energy transfer through the trophic levels & the reduction of available energy at successive trophic levels.</p> <p>Compare & contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism. Misconception: “Competition” between organisms always involves direct and aggressive interaction.</p>	<p>Media: Bozemanscience.com: “Speciation & Extinction”, “Populations”.</p>	

Course# 2002080	Course: ADV 7 th grade Science	Quarter: 4	Pacing:
Unit/Organizing Strand: Interdependence			
Essential Question(s): What are the roles and relationships among producers, consumers, and decomposers? How do mutualism, predation, parasitism, etc. affect relationships between organisms in an ecosystem? How do limiting factors impact native populations including food, shelter, water, space, disease, predation, nesting sites?			
Benchmarks	Standards	Resources	
<p>SC.912.L.17.6</p> <p>SC.7.L.17.3 Assessed as SC.7.L.17.2.</p> <p>SC.7.E. 6.6 Assessed as SC.7.E.6.2</p> <p>HE.7.C.1.3</p>	<p>Compare/contrast the relationships among organisms, including predation, parasitism, competition, commensalism & mutualism.</p> <p>Describe & investigate various limiting factors in the local ecosystem & their impact on native populations, including food, shelter, water, space, disease, parasitism, predation & nesting sites.</p> <p>Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air & water quality, changing the flow of water. Comment: Not required that you teach: soil management, land reclamation, smog, indoor air pollution, ozone, river systems, ponds, lakes, wetlands, etc.</p> <p>Analyze how environmental factors affect personal health. DOE Remarks: Examples include water quality, garbage collection.</p>	<p>Media: Bozemanscience.com: "Speciation & Extinction", "Populations".</p>	