St. Johns County School District
2015-2016 School Year
Course: 2002070

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# 2002070	**Course:** 7th grade 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# 2002070	**Course:** 7th grade Science	**Quarter:** 1 & throughout the year	**Pacing: Integrate throughout the year**
Unit/Organizing Strand: Florida Standards for Speaking and Listing 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# 2002070	**Course:** 7th grade 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 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.		

Course# 2002070	**Course:** 7th grade 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.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# 2002070	**Course:** 7th grade 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. *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.*		
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 ½ indicates an event that is neither unlikely nor likely and a probability near 1 indicates a likely event.		

Course# 2002070	**Course:** 7th grade 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**
SC.7.N.1.1 (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. **SC.7.N.1.2** Students will differentiate between replication and repetition. Students will evaluate the use of repeated trials or replication in a scientific investigation. **SC.7.N.1.3**	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. Differentiate replication (by others) from repetition (multiple trials). Distinguish between an experiment involving identification & control of variables & other forms of scientific investigation & explain that not all knowledge is derived by experimentation.		**Media: Bozemanscience.com**: "Scientific Method" **Mr. Edmonds:** "The Variables Song" http://www.youtube.com/watch?v=Hxbz656Euyw&feature=kp **Help to teach independent/dependent variables**: D R Y MIX

Course# 2002070	**Course:** 7th grade 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**		
SC.7.N.1.4	Identify test variables (independent) and outcome variables (dependent) in an experiment.		
SC.7.N.1.5 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.	Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology and physics.		
SC.7.N.1.6	Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based. **Connection to 6th grade:** Most of the "N" standards are taught in the 6th grade.		

Course # 2002070	**Course**: 7th 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**
SC. 7.N.3.1 Students will explain the difference between theories and laws and explain why theories may be modified but are rarely discarded.	Recognize & explain the difference between theories & laws & give several examples of scientific theories & the evidence that supports them.		**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?
SC.7.N.3.2 Also assesses SC.7.N.1.5	Identify the benefits & limitations of the use of scientific models.		

Course# 2002070	**Course:** 7th 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**
SC.7.P.11.2 Also assesses SC.7.P.11.1 & 3. Students will differentiate between potential energy and kinetic energy& identify situations where energy is transformed between kinetic energy & potential energy. Students will identify & or describe examples of the law of conservation of energy.	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.		**Simulations: http://phet.colorado.edu/** "Energy Forms & Changes", "Energy Skate Park". **Activity:** Graphic organizer for showing differences/similarities for heat, thermal energy, temperature.
SC.7.P.11.3 Also assesses SC.7.P.11.2	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.		**Media: You Tube-**Veritasium: **"**Misconceptions about Heat"
SC.7.P.11.1 Assessed as SC.7.P.11.4	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.		**Mr. Edmonds: "The Energy Song"** http://www.youtube.com/watch?v=_uLSFigtLKg
SC.7.P.11.4 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.	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:** **Not** necessary to teach about conductors/insulators. **END OF 1ST QTR.**		"**Heat and Energy**" http://www.youtube.com/watch?v=ZYuhMXmJeh4

Course# 2002070	**Course:** 7th 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**
SC.7.P.10.1 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. **SC.7.N.3.2** **SC.7.P.10.3** 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. **SC.7.P.10.2** **Assessed as SC.7.P.10.3**	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. Identify the benefits & limitations of the use of scientific models. (**Example:** Electromagnetic Spectrum**)** 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. 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.		**Media:** **Bozemanscience.com:** "Light Waves", "Sound Waves", "Waves". (GOOD FOR ADVANCED STUDENTS) **You tube:** The Electromagnetic Spectrum: http://www.youtube.com/watch?v=kfS5Qn0wn2o **Nbclearn.com** Science of Summer Olympics: "Designing a Fast Pool" (waves)

Course# 2002070	**Course:** 7th 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**
SC.7.E.6.1 Will be assessed as SC.7.E.6.5 **SC.7.N.1.7** **SC.7.N.2.1** **SC.7.E.6.2** 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	**Describe** the layers of the solid Earth including the lithosphere, the convecting mantle, and the dense metallic liquid & solid cores. Explain that scientific knowledge is the result of a great deal of debate & confirmation within the science community. Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered. Identify patterns within the rock cycle & relate them to surface events (weathering & erosion) & sub-surface events (plate tectonics & mountain building). **Comment:** Identify and describe steps of the rock cycle. Teach the 3 rock groups, representative examples of the groups not necessary. **Misconception:** Rocks are always solid. **END OF 2ND QUARTER**		**Model of Earth's Layers:** http://www.scec.org/education/k12/learn/ Plate Tectonics to Structure of the Earth.

Course# 2002070	**Course:** 7th 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**
SC.7.E.6.5 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)	Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow & rapid changes in Earth's surface, including volcanic eruptions, earthquakes, & mountain building. **Comment:** Not necessary to teach landforms such as dikes, sills, etc. Not necessary to teach 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. **Misconception:** Earth's plates are located deep within the earth & are made of melted rock.		**Media:** **Bozemanscience**.com "Plate Tectonics", "Law of Superposition". **Amoeba People**: Alfred Wegener Song/video clip: https://www.youtube.com/watch?v=T1-cES1Ekto **Continental Drift**: The Fixists:https://www.youtube.com/watch?v=hC1E93lTJbA **Web resources for plate tectonics:** http://pubs.usgs.gov/gip/dynamic/dynamic.html http://www.scec.org/education/k12/learn/ **Simulation:** http://phet.colorado.edu/Plate Tectonics
SC.7.E.6.7 Assessed as SC.7.E.6.5	Recognize that heat flow & movement of material within Earth causes earthquakes & volcanic eruptions, & creates mountains & ocean basins.		
SC. 7.N.3.1 Students will explain the difference between theories & laws & identify examples of each	Recognize & explain the difference between theories & laws & give several examples of scientific theories & the evidence that supports them.		
SC.7. E.6.4 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.	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.		
SC.7.E.6.3 Assessed as SC.7.E.6.4	**I**dentify 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. Not necessary to teach the various types of fossils. Half-life calculations are not necessary, only the concept of half-life required.		

Course# 2002070	**Course:** 7th 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**
SC.7.L.16.1 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**	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. Recognize & explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society & the environment.		**Media:** **Bozemanscience.com:** "Genetics", "Chromosomal Genetics" **Amoeba Sisters-You Tube:** **"**Structure and Function of DNA" **Web Resources:** **DNA:** http://www.yourgenome.org/landing_teachers.shtml **Virtual DNA extraction lab:** http://learn.genetics.utah.edu/content/labs/extraction/

Course# 2002070	**Course:** 7th 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.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. **Comment:** It is **not** required that you teach sex-linked, incomplete dominance, polygenic, multiple alleles, co-dominance, genetic disease or disorder, stages of meiosis. Not required that you teach the terms haploid or diploid. (from FCAT specs)		**Simulations:** www.cellsalive.com: "Mitosis" "Cell Cycle" "meiosis"
	END QUARTER 3		**Punnett Square Practice:** http://www.zerobio.com/drag_gr11/mono.htm **Virtual Lab: Punnett Squares/Traits**: http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html

Course# 2002070	**Course:** 7th 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**
SC.7.L.15.1 Assessed as SC.7.L.15.2 **SC.7.L.15.2** 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. **SC.7.L.15.3** Assessed as SC.7.L.15.2.	Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species. 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 ***individual*** adapting to their environment). **Misconception**: Population changes occur through gradual change in all members of a population, not through survival of the fittest. 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.		**Media:** **The Simpsons: Homer Evolution** https://www.youtube.com/watch?v=faRlFsYmkeY&safe=active **Bozemanscience.**com: "The Origin of Life", "Behavior & Natural Selection". **Khanacademy**.com**:** "Evolution". "The Making of the Fittest: Natural Selection & Adaptation" http://media.hhmi.org/fittest/natural_selection.html **Natural Selection Simulation:** http://www2.edc.org/weblabs/NaturalSelection/NaturalSelectionMenu.html **Phet**:https://phet.colorado.edu/en/simulation/natural-selection **Web Resource for Evolution:** http://www.cpet.ufl.edu/EIS/evol/Evol01.htm

Course# 2002070	Course: 7th 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
SC.7.L.17.1 Assessed as SC.7.L.17.2 **SC.7.L.17.2** 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. **SC.7.L.17.3** Assessed as SC.7.L.17.2. **SC.7.E. 6.6** Assessed as SC.7.E.6.2 **HE.7.C.1.3**	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. Compare & contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism. **Misconception:** "Competition" between organisms always involves direct and aggressive interaction. Describe & investigate various limiting factors in the local ecosystem & their impact on native populations, including food, shelter, water, space, disease, parasitism, predation & nesting sites. 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. Analyze how environmental factors affect personal health. **DOE Remarks:** Examples include water quality, garbage collection.		**Media:** Bozemanscience.com: "Speciation & Extinction", "Populations".