

St. Johns County School District  
2013-2014 School Year  
Course: 2002070

# 7<sup>th</sup> 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.

**Common Core Standards for Math & Literacy: (CCLS)** 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:** The overarching organizational structure used to group content and 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.

**Student Tasks:** Expected behavior that the student will demonstrate if they have acquired the knowledge from the standard.

**Chapter/page:** General references in your text, to guide your teaching.

**Key Terms:** Students should demonstrate fluency in vocabulary that is intrinsic to the course. The key terms listed in this map are the state suggested terms that may be part of a state test such as FCAT Science 2.0.

**Highlighted item:** DOE indicates that this content will be tested on the 8<sup>th</sup> grade FCAT 2.0 Science exam.

**Resources/Activities:** Are suggested. 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. Standards that are foundational to future middle or high school required courses have comments beneath the standard. **For resources on CPALMS, visit:** [www.cpalms.org](http://www.cpalms.org)

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 1 & throughout the year	<b>Pacing:</b> Integrate throughout the year
<b>Unit/Organizing Strand:</b> Language Arts Standards for Reading/Writing from the Common Core Standards			
<b>Benchmarks/Student Task:</b>	<b>Standard</b>		
LACC.68.RST.1 LACC.68.RST.1.3	<b>Key Ideas and Details</b> Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.		
LACC.68.RST.2 LACC.68.RST.2.4	<b>Craft and Structure</b> 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.		
LACC.68.RST.3 LACC.68.RST.3.7	<b>Integration of Knowledge and Ideas</b> 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).		
LACC.68.RST.4 LACC.68.RST.4.10	<b>Range of Reading and Text Complexity</b> By end of grade 8, read & comprehend science/technical text in the grade 6-8 text complexity band independently & proficiently.		
LACC.68.WHST.1 LACC.68.WHST.1.2	<b>Text Types and Purposes</b> Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.		
LACC.68.WHST.3 LACC.68.WHST.3.9	<b>Research to Build and Present Knowledge</b> Draw evidence from informational text to support analysis, reflection & research.		

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter: 1 &amp; throughout year</b>	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Math Standards from the Common Core Standards			
<b>Benchmark/ student tasks</b>	<b>Standards</b>		
<b>MACC.6.SP.1</b> <b>MACC.6.SP.1.3</b>  <b>MACC.6.SP.2.5</b> <b>MACC.6.SP.2.5a</b> <b>MACC.6.SP.2.5b</b>  <b>MACC.6.SP.2.5c</b>  <b>MACC.6.SP.2.5d</b>	<b>Develop understanding of statistical variability.</b> Recognize that a measure of center for a numerical data summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.  Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing nature of the attribute under investigation, including how it was measured & its units of measurement. Giving quantitative measures of the center (median and/or mean) & variability (interquartile range & or mean or absolute deviation) as well as describing overall patterns & striking deviations from the overall pattern with reference to the context in which the data was gathered. Relating the choice of measures of center & variability to the shape of the data distribution & the context in which the data was gathered.		

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 1	<b>Pacing:</b> approximately 2.5-3 weeks for N standards
<b>Unit/Organizing Strand:</b> The Practice of Science			
<b>Essential Question(s):</b> 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?			
<b>Benchmarks &amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<b>SC.7.N.1.1</b>	Define a problem from 7 <sup>th</sup> 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, collect & organize data, interpret data in charts, tables & graphics, analyze information, make predictions & defend conclusions.	<b>Media:</b> <a href="http://BozemanScience.com">BozemanScience.com</a> : <ul style="list-style-type: none"> <li>Scientific Method</li> </ul>	
<b>SC.7.N.1.2</b>	Differentiate replication (by others) from repetition (multiple trials).		
<b>SC.7.N.1.3</b>	Distinguish between an experiment involving identification & control of variables & other forms of scientific investigation & explain that not all knowledge is derived by experimentation.		

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 1	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> The Practice of Science			
<b>Essential Question(s):</b> Why do scientists use a scientific method/process? How does one conduct a valid scientific experiment? What is the difference between observation and inference?			
<b>Benchmarks &amp; Student Tasks</b>		<b>Standards</b>	
<b>SC.7.N.1.4</b>  <b>SC.7.N.1.5</b> Also assesses SC.7.N.3.2  <b>SC.7.N.1.6</b>		Identify test variables (independent) and outcome variables (dependent) in an experiment.  Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology and physics.  Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.	

<b>Course #</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 1	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> The Characteristics of Scientific Knowledge, The Role of Theories, Laws, Hypotheses & Models			
<b>Essential Question(s):</b> How does 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?			
<b>Benchmarks/Student Tasks:</b>	<b>Standards</b>		<b>Resources/Activities</b>
<p><b>SC. 7.N.3.1</b></p> <p><b>SC.7.N.3.2</b> Also assesses SC.7.N.1.5</p>	<p>Recognize &amp; explain the difference between theories &amp; laws &amp; give several examples of scientific theories &amp; the evidence that supports them.</p> <p>Identify the benefits &amp; limitations of the use of scientific models. <b>(NOT TESTED UNTIL Q2)</b></p>		<p><b>Writing:</b></p> <ul style="list-style-type: none"> <li>• 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?</li> </ul>

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 1	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Energy Transfer & Transformations			
<b>Essential Question(s):</b> How does addition or subtraction of heat affect a system? What is energy and how does it transform?			
<b>Benchmarks&amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.7.P.11.1</b> Assessed as SC.7.P.11.4</p> <p><b>SC.7.P.11.2</b> This standard will not be taught again in 8<sup>th</sup> grade. Also assesses SC.7.P.11.3</p> <p><b>SC.7.P.11.3</b> Also assesses SC.7.P.11.2</p> <p><b>SC.7.P.11.4</b> This standard will not be taught again in 8<sup>th</sup> grade. Also assesses SC.7.P.11.1</p>	<p>Recognize that adding heat to or removing heat from a system may result in a temperature change &amp; possibly a change of state.</p> <p>Investigate &amp; describe the transformation of energy from one form to another. <b>(For example: kinetic, potential, chemical, thermal, electrical, sound, light, etc.)</b></p> <p>Cite evidence to explain that energy cannot be created or destroyed, only changed from one form to another.</p> <p>Observe &amp; describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.</p>	<p><b>Article:</b> are in Middle School Articles folder on Science conference.</p> <ul style="list-style-type: none"> <li>• Heat-temperature</li> </ul> <p><b>Simulations:</b> <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a></p> <ul style="list-style-type: none"> <li>• Energy Forms &amp; Changes</li> <li>• Energy Skate Park</li> </ul>	
<b>END OF 1<sup>ST</sup> QUARTER</b>			



<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 2	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Forms of Energy			
<b>Essential Question(s):</b> 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?			
<b>Benchmark/Student Task</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.7.P.10.1</b> This standard will not be taught again in 8<sup>th</sup> grade.</p> <p><b>SC.7.P.10.3</b> This standard will not be taught again in 8<sup>th</sup> grade. Also assesses SC.7.P.10.2</p> <p><b>SC.7.P.10.2</b> 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 &amp; ultraviolet, &amp; that white light is made up of a spectrum of many different colors.</p> <p>Recognize that light waves, sound waves, &amp; other waves move at different speeds in different materials.</p> <p>Observe &amp; explain that light can be reflected, refracted &amp; or absorbed.</p>	<p><b>Media:</b> <a href="http://BozemanScience.com">BozemanScience.com</a>::</p> <ul style="list-style-type: none"> <li>• Light Waves</li> <li>• Sound Waves</li> </ul> <p><b>Article:</b> are in Middle School Articles folder on Science conference.</p> <ul style="list-style-type: none"> <li>• Sound</li> </ul> <p><b>Simulations:</b> <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a></p> <ul style="list-style-type: none"> <li>• Energy Forms &amp; Changes</li> <li>• Energy Skate Park</li> </ul> <p><a href="http://NBClearn.com">NBClearn.com</a> <b>Science of Summer Olympics:</b></p> <ul style="list-style-type: none"> <li>• Designing a Fast Pool (waves)</li> </ul>	

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 2	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Earth Structures			
<b>Essential Question(s):</b> 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?			
<b>Benchmarks &amp; Student Tasks</b>	<b>Standards</b>	<b>Resources</b>	
<b>SC.7.E.6.1</b> Will be assessed as SC.7.E.6.5  <b>SC.7.N.3.2</b>  <b>SC.7.N.1.7</b>  <b>SC.7.N.2.1</b>  <b>SC.7.E.6.2</b> This standard will not be taught again in 8 <sup>th</sup> grade. Also assesses SC.7.E.6.6	Describe the layers of the solid Earth including the lithosphere, the convecting mantle, and the dense metallic liquid & solid cores.  Identify the benefits & limitations of the use of scientific models.  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).	<b>Model of Earth's Layers:</b> <a href="http://www.scec.org/education/k12/learn/">http://www.scec.org/education/k12/learn/</a> <ul style="list-style-type: none"> <li>• Plate Tectonics to Structure of the Earth.</li> </ul>	

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<b>Unit/Organizing Strand:</b> Earth Structures			
<b>Essential Question(s):</b> How can we measure the age of the Earth, or parts of the Earth? What evidence do we have that shows that Earth has evolved and changed over geologic time & how does that evidence support scientific theories about Earth's geologic evolution? How is superposition & radioactive dating used to determine age of parts of the Earth?			
<b>Benchmarks &amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<b>SC.7.E.6.3</b> Assessed as SC.7.E.6.4	Identify current methods for measuring the age of Earth & its parts, including the law of superposition & radioactive dating.	<b>Media:</b> <a href="http://BozemanScience.com">BozemanScience.com</a> : <ul style="list-style-type: none"> <li>• Law of Superposition</li> </ul>	
<b>END OF 2<sup>nd</sup> QUARTER</b>			

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 3	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Earth Structures			
<b>Essential Question(s):</b> How are some of Earth's structures created? What causes earthquakes & volcanic eruptions?			
<b>Benchmark/Student Task</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.7.E.6.5</b> This standard will not be taught again in 8<sup>th</sup> grade. Also assesses SC.7.E.6.1 &amp; SC.7.E.6.7</p> <p><b>SC.7. E.6.4</b> This standard will not be taught again in 8<sup>th</sup> grade. Also assess SC.7.E.6.3</p> <p><b>SC.7.E.6.7</b> Assessed as SC.7.E.6.5</p>	<p>Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow &amp; rapid changes in Earth's surface, including volcanic eruptions, earthquakes, &amp; mountain building.</p> <p>Explain &amp; give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.</p> <p>Recognize that heat flow &amp; movement of material within Earth causes earthquakes &amp; volcanic eruptions, &amp; creates mountains &amp; ocean basins.</p>	<p><b>Media:</b> <a href="http://BozemanScience.com">BozemanScience.com</a>: • Plate Tectonics</p> <p><b>Web resources for plate tectonics:</b> <a href="http://pubs.usgs.gov/gip/dynamic/dynamic.html">http://pubs.usgs.gov/gip/dynamic/dynamic.html</a>  <a href="http://www.scec.org/education/k12/learn/">http://www.scec.org/education/k12/learn/</a>  <a href="http://phet.colorado.edu/PlateTectonics">http://phet.colorado.edu/Plate Tectonics</a></p>	

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 3	<b>Pacing:</b>
<b>Unit/Organizing Strand: Heredity &amp; Reproduction</b>			
<b>Essential Question(s):</b> 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? What does a Punnett square/Pedigree tell us?			
<b>Benchmark/Student Task</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.7.L.16.1</b> This standard will not be taught again in 8<sup>th</sup> grade. Also assesses SC.7.L.16.2 &amp; SC.7.L.16.3.</p> <p><b>SC.7.L.16.2</b> Assessed as SC.7.L.16.1</p>	<p>Understand &amp; 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.</p> <p>Determine the probabilities for genotype &amp; phenotype combinations using Punnett Squares &amp; pedigrees.</p>	<p><b>Media:</b> <a href="http://www.bozeman-science.com">BozemanScience.com</a>:</p> <ul style="list-style-type: none"> <li>Genetics</li> <li>Chromosomal Genetics</li> </ul> <p><b>Articles:</b> are in MS articles in Science teacher conference.</p> <ul style="list-style-type: none"> <li>DNA-Human Genome</li> <li>Genetics-Gregor Mendel</li> </ul> <p><b>Web Resources:</b> DNA: <a href="http://www.yourgenome.org/landing_teachers.shtml">http://www.yourgenome.org/landing_teachers.shtml</a></p> <p><b>Virtual DNA extraction lab:</b> <a href="http://learn.genetics.utah.edu/content/labs/extraction/">http://learn.genetics.utah.edu/content/labs/extraction/</a></p>	

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 3	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Heredity & Reproduction, Health Promotion & Disease Prevention to Enhance Health.			
<b>Essential Question(s):</b> How are the processes of mitosis & meiosis crucial for the transfer of genetic information? How does genetic engineering & artificial selection impact us?			
<b>Benchmark/Student Task</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<b>SC.7.L.16.3</b> Important topic for HS Biology Assessed as SC.7.L.16.1  <b>SC.7.L.16.4</b>  <b>HE.7.C.1.4</b>	Compare and contrast the general processes of sexual reproduction requiring meiosis & asexual reproduction requiring mitosis.  Recognize & explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society & the environment.  Describe how heredity can affect personal health.  <b>END QUARTER 3</b>	<a href="http://BozemanScience.com">BozemanScience.com</a> : <ul style="list-style-type: none"> <li>• Mitosis</li> <li>• Meiosis</li> </ul> <b>Simulations:</b> <a href="http://www.cellsalive.com">www.cellsalive.com</a> : <ul style="list-style-type: none"> <li>• Mitosis</li> <li>• Cell Cycle</li> <li>• Meiosis</li> </ul>	

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 4	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Diversity & Evolution of Living Organisms			
<b>Essential Question(s):</b> 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?			
<b>Benchmark/Student Task</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.7.L.15.1</b> Important HS Biology topic, will not be taught again in 8<sup>th</sup> grade. Assessed as SC.7.L.15.2</p> <p><b>SC.7.L.15.2</b> Important HS Biology topic, will not be taught again in 8<sup>th</sup> grade. Also assesses SC.7.L.15.1 &amp; SC.7.L.15.3.</p> <p><b>SC.7.L.15.3</b> Assessed as SC.7.L.15.2.</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 &amp; explaining ways in which genetic variation &amp; environmental factors contribute to evolution by natural selection &amp; diversity of organisms.</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.</p>	<p><b>Media:</b> <a href="http://BozemanScience.com">BozemanScience.com</a>:</p> <ul style="list-style-type: none"> <li>• The Origin of Life</li> <li>• Behavior &amp; Natural Selection</li> <li>• Examples of Natural Selection</li> </ul> <p><b>Khanacademy.com:</b></p> <ul style="list-style-type: none"> <li>• Evolution</li> </ul> <p><b>Articles:</b> are in the MS articles in Science conference.</p> <ul style="list-style-type: none"> <li>• Charles Darwin</li> <li>• Darwin's Theory of Evolution</li> </ul>	

<b>Course#</b> 2002070	<b>Course:</b> 7th Grade Science	<b>Quarter:</b> 4	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Interdependence			
<b>Essential Question(s):</b> 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?			
<b>Benchmark/Student task</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.7.L.17.1</b> Assessed as SC.7.L.17.2</p> <p><b>SC.7.L.17.2</b> This standard will not be taught again in 8<sup>th</sup> grade. Also assesses SC.7.L.17.1 &amp; SC.7.L.17.3.</p> <p><b>SC.7.L.17.3</b> Assessed as SC.7.L.17.2.</p> <p><b>SC.7.E. 6.6</b> Assessed as SC.7.E.6.2</p>	<p>Explain &amp; illustrate the roles of &amp; relationships among producers, consumers, &amp; decomposers in the process of energy transfer in a food web.</p> <p>Compare &amp; contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.</p> <p>Describe &amp; investigate various limiting factors in the local ecosystem &amp; their impact on native populations, including food, shelter, water, space, disease, parasitism, predation &amp; nesting sites.</p> <p>Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air &amp; water quality, changing the flow of water.</p>	<p><b>Media:</b> <a href="http://BozemanScience.com">BozemanScience.com</a>:</p> <ul style="list-style-type: none"> <li>• Speciation and Extinction</li> <li>• Populations</li> </ul> <p><b>Articles:</b> are in the MS articles in Science conference.</p> <ul style="list-style-type: none"> <li>• Ecosystems</li> </ul>	