

St. Johns County School District  
2013-2014 School Year  
Course: 2002040

# 6<sup>th</sup> grade Science

## Curriculum Map Terms & Use (6/25)

**Text:** Pearson Interactive Science Course 1. Supplement with additional materials.

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

**Unit/Organizing Strand:** The overarching organizational structure used to group content and concepts within the curriculum map.

**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 students to evaluate/analyze information. Visit [www.cpalms.org](http://www.cpalms.org) for correlation of CC standards to Science standards.

**Essential Questions:** If present, these serve to guide instruction & to push the student to higher levels of 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 information 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.

**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 EOC or FCAT.

**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 important and foundational topics for future learning. Standards that are foundational to future middle or high school required courses have comments beneath the benchmark. Visit [www.cpalms.org](http://www.cpalms.org) for resources.

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 1 & throughout the year	<b>Pacing:</b> Integrate throughout curriculum
<b>Unit/Organizing Strand:</b> Language Arts Standards for Reading/Writing from Common Core			
<b>Benchmark/ Student Task</b>	<b>Standards</b>		
<b>LACC.68.RST.1.3</b>	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.		
<b>LACC.68.RST.2.4</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.		
<b>LACC.68.RST.3.7</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).		
<b>LACC.68.RST.4.10</b>	By end of grade 8, read & comprehend science/technical text in the grade 6-8 text complexity band independently & proficiently.		
<b>LACC.68.WHST.1.2</b>	<p>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <ol style="list-style-type: none"> <li>a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, &amp; information into broader categories as appropriate to achieving purpose; include formatting, graphics, &amp; multimedia when useful to aid comprehension.</li> <li>b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information &amp; examples.</li> <li>c. Use appropriate &amp; varied transitions to create cohesion &amp; clarify relationships among ideas &amp; concepts</li> <li>d. Use precise &amp; domain specific vocabulary to inform about or explain the topic.</li> <li>e. Establish &amp; maintain a formal style &amp; objective tone.</li> <li>f. Provide a concluding statement or section that follows from &amp; supports the information or explanation presented.</li> </ol>		
<b>LACC.68.WHST.3.9</b>	Draw evidence from informational text to support analysis, reflection & research. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.		

Course# 2002040	Course: 6th grade Science	Quarter: 1 & throughout the year	Pacing:
Unit/Organizing Strand: Math Standards from the Common Core Standards			
<b>Benchmarks&amp; Student Tasks</b>	<b>Standards</b>		
<b>MACC.6.EE.3.9</b>	Use variables to represent two quantities in a real-world problem that change in relationship to one another;write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between dependent & independent variables using graphs and talbes and relate these to the equation. <i>For example, in a problem involving motion at constant speed, list &amp; graph ordered pairs of distances &amp; times, and write the equation <math>d=65t</math> to represent the relationship between distance and time.</i>		
<b>MACC.6.SP.1.3</b>	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.		
<b>MACC.6.SP.2.5</b>	<b>Summarize numerical data sets in relation to their context, such as by:</b> <ol style="list-style-type: none"> <li>Reporting # of observations.</li> <li>Describing nature of attribute under investigation, including how it was measured &amp; units of measurement.</li> <li>Giving quantitative measures of the center (median and/or mean) &amp; variability (interquartile range &amp; or mean or absolute deviation) as well as describing any overall pattern &amp; any striking deviations from the overall pattern with reference to the context in which data was gathered.</li> <li>Relating the choice of measures of center &amp; variability to the shape of the data distribution and the context in which the data was gathered.</li> </ol>		

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 1 & throughout the year	<b>Pacing:</b> approximately 3.5-4 weeks for “N” standards
<b>Unit/Organizing Strand:</b> The Practice of Science			
<b>Essential Question(s):</b> How are observations different from inferences? What is the scientific method “process”? Why must scientific investigations be replicable?			
<b>Benchmarks</b>	<b>Standard</b>	<b>Resources/Activities</b>	
<b>SC.6.N.1.1</b>	Define a problem from the 6 <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, and defend conclusions.	<b>Resource: Media:</b> <b>Bozemanscience.com</b> “Scientific Method”  <b>Activity:</b> Have students plan & create a “mock” experiment. They can write out the steps & predict an outcome, showing data collection. Graph the result & analyze.	
<b>SC.6.N.1.2</b>	Explain why scientific investigations should be replicable.		
<b>SC.6.N.1.3</b>	Explain the difference between an experiment & other types of scientific investigation, & explain the relative benefits & limitations of each.		
<b>Teach “N” standards throughout the year, but, not tested on Qtr 1 exam.</b> <b>“N’ STANDARDS TESTED ON MIDTERM (qtr 2)</b>			

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 1 & throughout the year	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> The Practice of Science, Characteristics of Scientific Knowledge			
<b>Benchmarks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
SC.6.N.1.4	Discuss, compare & negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation.	<b>Activity:</b> Students can talk to a shoulder partner about the reasons why results & methods might vary when testing a hypothesis. Then, each should write a brief paragraph with an explanation, based on the conversation.	
SC.6.N.1.5	Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.		
SC.6.N.2.1	Distinguish science from other activities involving thought.		
SC.6.N.2.2	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.		
SC.6.N.2.3	Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds & possess varied talents, interests and goals.		
SC.6.N.3.4	Identify the role of models in the context of the 6 <sup>th</sup> grade science benchmarks. <b>“N” STANDARDS TESTED ON MIDTERM (qtr 2)</b>		

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 1	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> The Role of Theories, Laws, Hypotheses, and Models			
<b>Essential Question(s):</b> How do scientists solve problems? How are theories different from laws? Why are models useful/important in science?			
<b>Benchmarks&amp; Student Tasks:</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<b>SC.6.N.3.1</b>	Recognize and explain that a scientific theory is a well-supported & widely accepted explanation of nature & is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday life.	<b>Activity:</b> Ask students to cite examples of both societal & scientific laws. Ask them to analyze how they differ & what similarities that they share, in terms of their construct.	
<b>SC.6.N.3.2</b>	Recognize & explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.		
<b>SC.6.N.3.3</b>	Give several examples of scientific laws.		
	<b>(NOTE: N.3.1-N3.3 will not be tested until Qtr3,however, teach in quarter 1, as well)</b>		

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 1	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Organization & Development of Living Organisms			
<b>Essential Question(s):</b> What are characteristics of living things? <b>How do plant cells differ from animal cells?</b> How are living things organized? How do living things maintain homeostasis? <b>What are the components of the cell theory? How does the structure of major organelles accommodate the function of the organelle?</b>			
<b>Benchmarks&amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.6.L.14.2</b> Not taught again in MS, EXTREMELY important foundation for HS Biology. Also assesses SC.6.L.14.3.</p> <p><b>SC.6.L.14.3</b> Assessed as SC.6.L.14.2.</p> <p><b>SC.6.L.14.4</b> Not taught again in MS, EXTREMELY important foundation for HS Biology.</p> <p><b>SC.6.L.15.1</b></p>	<p>Investigate &amp; explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single celled or multi cellular), all cells come from pre-existing cells, &amp; cells are the basic unit of life.</p> <p>Recognize &amp; explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, &amp; reproducing.</p> <p>Compare &amp; contrast the structure &amp; function of major organelles of plant&amp; animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria &amp; vacuoles.</p> <p>Analyze &amp; describe how &amp; why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined <b>with the concept of Domains.</b></p> <p><b>END OF QUARTER 1 : “N” standards will be tested at end of qtr 2 (except N.3.1-3.3)</b></p>	<p><b>Activities/Resource</b> Create a graphic comparing/contrasting cell organelles. Do the same for plant/animal cells. Write a brief explanation of structure to function for each.</p> <p><b>Media:</b> <b>Khanacademy.com:</b> “Parts of a Cell”.</p> <p><b>Bozemanscience.com:</b> “The Wacky History of the Cell” “Cellular Organelles” “Classification of Life”</p> <p><b>Simulation:</b> For cells: <a href="http://www.cellsalive.com/cells/3dcell.htm">http://www.cellsalive.com/cells/3dcell.htm</a></p>	



<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 2	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Diversity & Evolution of Living Organisms, Organization & Development of Living Organisms			
<b>Essential Question(s):</b> What characteristics do all living things share? How are living things organized? What are some of the major structures of the human body?			
<b>Benchmarks &amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.6.L.14.1</b> This standard is not taught again in MS.</p> <p><b>SC.6.L.14.5</b> The parts of the brain, immune system and reproductive system are emphasized topics in HS Biology. Also assesses SC.6.L.14.6.</p> <p><b>SC.6.L.14.6</b> Also assesses SC.6.L.14.5.</p> <p><b>HE.6.C.1.3</b></p> <p><b>HE.6.C.1.8</b></p>	<p>Describe &amp; identify patterns in the hierarchical organization of organisms from atoms to molecules &amp; cells to tissues to organs to organ systems to organisms.</p> <p>Identify &amp; investigate the <b>general</b> functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, &amp; musculoskeletal) &amp; describe ways that these systems interact with each other to maintain homeostasis.</p> <p>Compare &amp; contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi &amp; parasites.</p> <p>Identify environmental factors that affect personal health.</p> <p>Explain how body systems are impacted by hereditary factors &amp; infectious agents.</p> <p><b>END QUARTER 2/SEMESTER</b></p>	<p><b>Media:</b> <b>Bozemanscience.com</b> "Viruses" "Bacteria" "Nervous system" "Circulatory system" "Immune system" "Respiratory system" "Digestive system"</p> <p><b>Activity:</b> Create a graphic that shows the flow from atoms to organisms.</p>	

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 3	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Energy Transfer & Transformations, Forces & Changes in Motion			
<b>Essential Question(s):</b> What is energy? What does the law of conservation of energy tell us? How is motion observed, described, measured? What affects the motion of an object?			
<b>Benchmark/Student Tasks:</b>	<b>Standards</b>		<b>Resources/Activities</b>
<p><b>SC.6.P.11.1</b> Assessed as SC.7.P.11.2</p> <p><b>SC.6.P.12.1</b> Assessed as SC.6.P.13.3</p> <p><b>SC.6.P.13.1</b> This standard will not be taught again in middle school. Also assesses SC.6.P.13.2.</p>	<p>Explore the Law of Conservation of Energy by differentiating between potential &amp; kinetic energy. Identify situations where kinetic energy is transformed into potential energy &amp; vice versa.</p> <p>Measure &amp; graph distance versus time for an object moving at a constant speed. Interpret this relationship.</p> <p>Investigate &amp; describe types of forces including contact forces &amp; forces acting at a distance, such as electrical, magnetic &amp; gravitational.</p>		<p>“Graph: Position vs. time”, and assorted gravity prompts for writing in <b>MS Writing</b> prompts folder on Science conference.</p> <p><b>Simulations:</b> <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a> “Energy Forms and Changes”, “Energy Skate Park”, “Forces and Motion”</p>

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 3	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Energy Transfer & Transformations, Forces & Changes in Motion			
<b>Essential Question(s):</b> What is energy? What does the law of conservation of energy tell us? How is motion observed, described, measured? What affects the motion of an object? What is a force? How do some forces act from a “distance”?			
<b>Benchmark/ Student Tasks:</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<b>SC.6.P.13.2</b> Assessed as SC.6.P.13.1.  <b>SC.6.P.13.3</b> This standard will not be taught again in MS. Also assesses SC.6.P.12.1.  <b>SC.6.N.3.3</b>  <b>SC.6.N.3.1</b>  <b>SC.6.N.3.2</b>	Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object & that the force depends on how much mass the objects have and how far apart they are.  Investigate & describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.  Give several examples of scientific laws.  Recognize & explain that a scientific law is a description of a specific relationship under given conditions in the natural world. Thus, scientific laws are different from societal laws.  Recognize and explain that a scientific theory is a well-supported & widely accepted explanation of nature & is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday life.  <b>END OF THIRD QUARTER</b>	<b>Media:</b> <b>Bozemanscience.com</b> “Newton’s 3 Laws of Motion” “Speed, Velocity, & Acceleration”  <b>www.nbclearn.com</b> “Newton’s Three Laws of Motion”  <b>Simulation:</b> <a href="http://phet.colorado.edu/">http://phet.colorado.edu/</a> “Gravity Force Lab”	

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 4	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Forces and Changes in Motion , Earth Patterns & Systems			
<b>Essential Question(s):</b> What are the ways in which energy (as heat) transfers? What are the biogeochemical cycles of the earth and how do they impact our weather?			
<b>Benchmarks&amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.6.E.7.1</b> Assessed as SC.6.E.7.5.</p> <p><b>SC.6.E.7.2</b> Assessed as SC.6.E.7.4.</p> <p><b>SC.6.E.7.5</b> This standard will not be taught again in MS. Also assesses SC.6.E.7.1.</p>	<p>Differentiate among radiation, conduction &amp; convection, the three mechanisms by which heat is transferred through Earth's system.</p> <p>Investigate &amp; apply how the cycling of water between the atmosphere &amp; hydrosphere has an effect on weather patterns &amp; climate.</p> <p>Explain how energy provided by the sun influences global patterns of atmospheric movement &amp; the temperature differences between air, water &amp; land.</p>	<p><b>MS article:</b> "Biogeochemical Cycles in the MS articles folder &amp; "Forces" in MS <b>Writing</b> prompts folder—both on Science conference.</p> <p><b>Critical Thinking Questions:</b> "Conduction, Convection, Etc." on Science Teachers Conference, 6<sup>th</sup> Gr. Activities</p> <p><b>BozemanScience.com:</b> "Biogeochemical Cycles"</p>	

<b>Course#</b> 2002040	<b>Course:</b> 6 <sup>th</sup> grade Science	<b>Quarter:</b> 4	<b>Pacing:</b>
<b>Unit/Organizing Strand:</b> Earth Systems & Patterns			
<b>Essential Question(s):</b> How does matter interact/cycle through earth? How does energy drive changes on our planet? What is the source of all energy?			
<b>Benchmarks&amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.6.E.7.3</b> Assessed as SC.6.E.7.4.</p> <p><b>SC.6.E.7.4</b> This standard will not be taught again in middle school. Also assesses SC.6.E.7.2, SC.6.E.7.3, SC.6.E.7.6 &amp; SC.6.E.7.9.</p> <p><b>SC.6.E.7.6</b> Assessed as SC.6.E.7.4.</p>	<p>Describe how global patterns such as the jetstream &amp; ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction &amp; speed, and humidity &amp; precipitation.</p> <p>Differentiate &amp; show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, &amp; biosphere.</p> <p>Differentiate between weather &amp; climate.</p>	<p>Have students write about how global patterns would be influenced if less radiant energy were able to reach Earth. They can predict the ecological/economic effects of this.</p> <p>Choose a biogeochemical cycle &amp; explain its mechanism. What drives the cycle?</p> <p><b>Media:</b> <b><a href="http://science360.gov">http://science360.gov</a></b> "Modeling our Future Climate" <b><a href="http://www.nbclearn.com">www.nbclearn.com</a></b> Changing Planet: "Ocean Temperatures"</p> <p><b>Article:</b> MS Articles folder on Science conference: Biogeochemical cycles</p>	

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<b>Unit/Organizing Strand:</b> Earth Systems & Patterns			
<b>Essential Question(s):</b> What types of natural disasters are a concern for Florida and why? In what ways is the earth “self protective”?			
<b>Benchmarks &amp; Student Tasks</b>	<b>Standards</b>	<b>Resources/Activities</b>	
<p><b>SC.6.E.7.7</b></p> <p><b>SC.6.E.7.8</b></p> <p><b>SC.6.E.7.9</b> Assessed as SC.6.E.7.4.</p>	<p>Investigate how natural disasters have affected human life in Florida.</p> <p>Describe ways that human beings protect themselves from hazardous weather &amp; sun exposure.</p> <p>Describe how the composition &amp; structure of the atmosphere protects life &amp; insulates the planet.</p>	<p><b>Resource:</b> <b>Article:</b> “Severe Weather” in MS article folder on Science conference.</p>	

