St. Johns County School District
2015-2016 School Year
Course: 2002050

Advanced 6th Grade Science

Curriculum Map Terms & Use

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.

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 students to evaluate/analyze information.

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.

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

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

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.

SC.912.P…These are your advanced standards. The examples ("ex") are state clarification statements for the standards.

Remarks: Are Department of Education clarifications.

Resources/Activities: Are suggested. Teachers should preview all media. 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. Visit www.cpalms.org for resources.

Course# 2002050	**Course: ADV** 6th grade Science	**Quarter**: 1 & throughout the year	**Pacing: Integrate throughout curriculum**
Unit/Organizing Strand : Language Arts Standards for Reading/Writing from Florida Standards : Speaking and Listening			

Benchmarks	**Standards**
LAFS.6.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, & teacher-led_ with diverse partners on grade 6 topics, texts, & issues, building on others' ideas & expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed. c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
LAFS.6.SL.1.2	Interpret information presented in diverse media & formats (e.g., visually, quantitatively, and orally) and explain how it contributes to a topic, text, or issue under study.
LAFS.6.SL.1.3	Delineate a speaker's argument & specific claims, distinguishing claims that are supported by reasons & evidence from claims that are not.
LAFS.6.SL.2.4	Present claims & findings, sequencing ideas logically & using pertinent descriptions, facts & details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, & clear pronunciation.
LAFS.6.SL.2.5	Include multimedia components (e.g., graphics, images, music, sound & visual displays in presentations to clarify information.
ELD.K12.ELL.SI.1 **ELD.K12.ELL.SC.1**	English language learners communicate for social and instructional purposes within the school setting. English language learners communicate information, ideas and concepts necessary for academic success in the content area of Science.

Course# 2002050	**Course: ADV** 6th grade Science	**Quarter**: 1 & throughout the year	**Pacing: Integrate throughout curriculum**
Unit/Organizing Strand: Language Arts Standards for Reading/Writing from Florida Standards: Reading in Science & Technical Subjects			

Benchmarks	**Standards**
LAFS.68.RST.1.1	Cite specific textual evidence to support analysis of science & 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, and 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# 2002050	**Course: ADV** 6th grade Science	**Quarter**: 1 & throughout the year	**Pacing: Integrate throughout curriculum**
Unit/Organizing Strand: Language Arts Standards for Reading/Writing from Florida Standards : Writing in History, Science and Technical Subjects			

Benchmark	**Standards**
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. a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, & information into broader categories as appropriate to achieving purpose; include formatting, graphics, & multimedia when useful to aid comprehension. b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information & examples. c. Use appropriate & varied transitions to create cohesion & clarify relationships among ideas & concepts d. Use precise & domain specific vocabulary to inform about or explain the topic. e. Establish & maintain a formal style & objective tone. f. Provide a concluding statement or section that follows from & supports the information or explanation presented.
LAFS.68.WHST.2.4	Produce clear & coherent writing in which the development, organization, & style are appropriate to task, purpose, and audience.

Course# 2002050	**Course: ADV** 6th grade Science	**Quarter**: 1 & throughout the year	**Pacing:**
Unit/Organizing Strand: Language Arts Standards for Reading/Writing from Florida Standards : Writing in History, Science and Technical Subjects			

Benchmarks	**Standards**
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.
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# 2002050	**Course: ADV** 6th Science	**Quarter: 1 & throughout the year**	**Pacing:**
Unit/Organizing Strand: Math Standards from the Florida Standards: Statistics & probability, Expressions & Equations			

Benchmarks	**Standards**		
MAFS.6.EE.3.9	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 tables and relate these to the equation. *For example, in a problem involving motion at constant speed, list & graph ordered pairs of distances & times, and write the equation d=65t to represent the relationship between distance and time.*		
MAFS.6.SP.2.4	Display numerical data in plots on a number line, including dot plots, histograms & box plots.		
MAFS.6.SP.2.5	**Summarize numerical data sets in relation to their context, such as by:** a. Reporting # of observations. b. Describing nature of attribute under investigation, including how it was measured & units of measurement. c. Giving quantitative measures of the center (median and/or mean) & variability (interquartile range & or mean or absolute deviation) as well as describing any overall pattern & any striking deviations from the overall pattern with reference to the context in which data was gathered. d. Relating the choice of measures of center & variability to the shape of the data distribution and the context in which the data was gathered.		
MAFS.7.SP.2.4	Use measure of center & measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.		
MAFS.7.SP.3.5	Understand that the 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.		

Course# 2002050	**Course: ADV** 6th grade Science	**Quarter:** 1 & throughout the year	**Pacing:** approximately 3 wks. for "N" standards, including safety & beginning rules.

Unit/Organizing Strand: The Practice of Science

Essential Question(s): How are observations different from inferences? What is the scientific method "process"? Why must scientific investigations be replicable?

Benchmarks	**Standard**		**Resources/Activities**
SC.6.N.1.1 FCAT Students will identify test variables and or outcome variables in a given scientific investigation. Students will **interpret/evaluate/analyze** data to make predictions/defend conclusions. Students will distinguish between an experiment and other types of scientific investigations where variables cannot be controlled. **SC.6.N.1.2 FCAT** (Assessed as 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. Students will compare methods and/or results obtained in a scientific investigation. **SC.6.N.1.3**	Define a problem from the 6th 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, etc) collect & organize data, (qualitative & quantitative) interpret data in charts, tables & graphics, analyze information, make predictions, and defend conclusions. **Comment:** Teach lab safety and basic lab equipment/skills, scientific processes (observing, inferring, etc.), metric measures & units in beginning & throughout the year (ex.volume, grams, meter, cm, mL), data collection and use (line and bar graphs, data charts). **Not necessary to teach**: metric conversions, accuracy/precision, mean, median, mode, significant figures). Explain why scientific investigations should be replicable. Explain the difference between an experiment & other types of scientific investigation, & explain the relative benefits & limitations of each. **Remarks:** Explain that an investigation is observing/studying the natural world without interference or manipulation, an experiment is an investigation that involves variables (independent, dependent, etc.) & establishes cause-effect relationships.		**Resource: Media: Bozemanscience.com** "Scientific Method" **Mr. Edmonds Songs:** "Scientific Method": http://www.youtube.com/watch?v=WEXMB5wsl0w "The Variables Song" **Help to teach independent/dependent variables**: D R Y MIX **Activity:** Have students plan & create a "mock" experiment. They can write out the steps & predict an outcome, showing data collection. Science Fair is an optional activity-check with your chair.

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter**: 1 & throughout the year	**Pacing:**
Unit/Organizing Strand: The Practice of Science, Characteristics of Scientific Knowledge			

Benchmarks	**Standards**		**Resources/Activities**
SC.6.N.1.4 **SC.6.N.1.5** **SC.6.N.2.1** **SC.6.N.2.3** **NOTE: These concepts should be "folded" into the teaching of the N.1.1 standards, they are not stand alone.**	Discuss, compare & negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation. Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence. Distinguish science from other activities involving thought. **Remarks:** Thought refers to any intellectual activity involving an individual's subjective consciousness. Science is a systematic process that pursues, builds & organizes knowledge in the form of testable explanations & predictions about the natural world. Recognize that scientists who make contributions to scientific knowledge come from all kinds of backgrounds & possess varied talents, interests and goals. **Please be sure that incoming 6th graders master these concepts**: Vocabulary: qualitative, quantitative, observation, inference, hypothesis, types of variables (ex.: independent), basic SI units of measure & how objects are measured (volume, length, etc.), interpreting simple charts/graphs.		**Activity:** 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.

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 1**	**Pacing:**

Unit/Organizing Strand: Energy Transfer & Transformations, Forces & Changes in Motion

Essential Question(s): 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?

Benchmarks	**Standards**		**Resources**
SC.6.P.11.1 Assessed as SC.7.P.11.2 **SC.6.P.12.1** **Assessed as SC.6.P.13.3** **SC.6.P.13.1 FCAT** Students will identify and/or describe types of forces & describe the relationship among distance, mass & gravitational force between any two objects. Students will differentiate between mass & weight. Also assesses SC.6.P.13.2.	Explore the Law of Conservation of Energy by differentiating between potential & kinetic energy. Identify situations where kinetic energy is transformed into potential energy & vice versa. **Misconception**: Energy can be created. Measure & graph distance versus time for an object moving at a constant speed. Interpret this relationship. **Comment: NOT** required to teach calculations for speed. Investigate & describe types of forces including contact forces & forces acting at a distance, such as electrical, magnetic & gravitational. **Misconception:** Energy can be transformed into a force.		**Simulations:** http://phet.colorado.edu/ "Energy Forms and Changes", "Energy Skate Park", "Forces and Motion"

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 1**	**Pacing:**
Unit/Organizing Strand: Energy Transfer & Transformations, Forces & Changes in Motion			
Essential Question(s): What is a force? What factors impact a force? How do some forces act from a "distance"?			

Benchmark	**Standards**		**Resources**
SC.6.P.13.2 Assessed as SC.6.P.13.1. Students will be able to differentiate between mass & weight. **SC.6.P.13.3 FCAT** Students will interpret &/or analyze graphs of distance & time for an object moving at constant speed. Also assesses SC.6.P.12.1. **SC.6.N.3.3** **SC.6.N.3.2**	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. **Comment:** Students should understand the concept of gravitational force and the factors that impact it. **Misconception:** Gravity comes from "out in space". Investigate & describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both. **Comment:** Students may be required to calculate net force and assess its direction. Students should understand the terms positive and negative acceleration. Items DO NOT require calculation of acceleration. **Not** necessary to teach Newton's Laws. 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. **END OF QUARTER 1**		**Simulation:** http://phet.colorado.edu/ **"**Gravity Force Lab" "Forces and Motion: Basics"

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 2**	**Pacing:**

Unit/Organizing Strand: Earth Patterns & Systems

Essential Question(s): What is the source of almost all energy on earth? 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?

Benchmarks	**Standards**		**Resources/Activities**
SC.6.E.7.4 FCAT **Also assesses SC.6.E.7.2.E.7.3,E.7.6 &.E.7.9.** Students will describe/explain how the cycling of water & global patterns influence local weather/climate. Students will describe the composition & structure of the atmosphere &/or how the atmosphere protects life & insulates the planet.	Differentiate & show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, & biosphere.		**BozemanScience.com:** "Biogeochemical Cycles"
SC.912.E.7.3	Differentiate & show interactions among Earth's systems including atmosphere, hydrosphere, cryosphere, geosphere, and biosphere. Ex: Interactions include biogeochemical cycles, photosynthesis, plate tectonics, storms, winds, etc.		
SC.6.E.7.1 Assessed as SC.6.E.7.5.	Differentiate among radiation, conduction & convection, the three mechanisms by which heat is transferred through Earth's system.		
SC.6.E.7.2 Assessed as SC.6.E.7.4.	Investigate & apply how the cycling of water between the atmosphere & hydrosphere has an effect on weather patterns & climate. **Comment:** Teach how clouds form but, not required that you teach the types of clouds.		
SC.912.P.10.4	Describe heat as the energy transferred by convection, conduction & radiation & explain the connection of heat to change in temperature or states of matter.		
SC.6.E.7.8	Describe ways that human beings protect themselves from hazardous weather & sun exposure.		

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 2**	**Pacing:**

Unit/Organizing Strand: Earth Systems & Patterns

Essential Question(s): How does matter interact/cycle through earth? How does energy drive changes on our planet? **What is the source of all energy?**

Benchmarks	**Standards**		**Resources/Activities**
SC.6.E.7.9 Assessed as SC.6.E.7.4. **SC.6.E.7.5 FCAT** Students will explain how energy provided by the sun influences global patterns of atmospheric movement. Items will **NOT** assess knowledge of Coriolis effect. **SC.6.E.7.3** **Assessed as SC.6.E.7.4.** **SC.6.E.7.6** **Assessed as SC.6.E.7.4.**	Describe how the composition & structure of the atmosphere protects life & insulates the planet. **Comment:** Teach the layers of the atmosphere and function/what occurs in each. Ex.: stratosphere contains ozone layer, troposphere is where weather occurs. Explain how energy provided by the sun influences **global** patterns of atmospheric movement & the temperature differences between air, water & land. **Comments:** Students should understand the concept of global patterns of wind, & how land/sea breezes form. Not necessary to teach Coriolis Effect or the specific patterns of winds at the latitudes. Describe how **global** patterns such as the jet stream & ocean currents influence local weather in measurable terms such as temperature, air pressure, wind direction & speed, and humidity & precipitation. **Comment**: Discuss how the jet streams and ocean currents such as the gulf stream influence weather and in what ways. Not required that you teach: air masses and their movements, types of fronts, storm formation, predicting the weather. Differentiate between weather & climate. **Comment:** This is very basic. Not necessary to teach types of clouds, air masses and their movements, types of fronts, storm formation, predicting the weather.		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. **Media:** **www.nbclearn.com** "Modeling our Future Climate" Changing Planet: "Ocean Temperatures" **Nova:** "Clouds and Weather" http://www.pbs.org/wgbh/nova/labs/video_popup/3/21/

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 2**	**Pacing:**
Unit/Organizing Strand: Earth Systems & Patterns			
Essential Question(s): Are we able to predict weather? How does severe weather begin?			

Benchmarks	**Standards**		**Resources/Activities**
SC.912.E.7.6	Relate the formation of severe weather to the various physical factors. Ex: Identify causes of severe weather. Compare/contrast physical factors that affect formation of severe weather events (hurricanes, tornadoes, drought, etc.)		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. **Media: www.nbclearn.com** "Modeling our Future Climate" Changing Planet: "Ocean Temperatures" **Nova:** "Clouds and Weather" http://www.pbs.org/wgbh/nova/labs/video_popup/3/21/
SC.912.E.7.5	Predict future weather conditions based on present observations & conceptual models & recognize limitations & uncertainties of such predictions. Ex: Use models, weather maps & other tools to predict weather conditions & differentiate between accuracy of short and long range weather forecasts.		
SC.6.E.7.7	Investigate how natural disasters have affected human life in Florida.		

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 2**	**Pacing:**
Unit/Organizing Strand: Earth Structures			
Essential Question(s): How has/ is Earth's surface continually changed by constructive and destructive forces?			

Benchmarks	**Standards**		**Resources/Activities**
SC.6.E.6.1	Describe & give examples of ways in which Earth's surface is built up & torn down by physical & chemical weathering, erosion & deposition. **Comments:** Not necessary to get very specific (barrier beaches, horn, arête, oxbow lake, etc.). Students should understand what each process is and have basic understanding and be familiar with examples of erosion and deposition. **Misconceptions:** Wind cannot carry rock and deposit it in a new location. Water cannot dissolve rock.		**Activity:** Have students research & briefly present a feature of Florida caused by weathering, erosion, or deposition. They should specify how the feature occurred and explain why this specifically occurred in Florida. They can then compare to another state with different features.
SC.6.E.6.2	Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas & lakes & relate these landforms as they apply to Florida. **Comments:** Students should understand that these landforms are a result of erosion and deposition, keep it simple. **Connection:** This standard is annually assessed on the 5th grade FCAT 2.0 Science test. **END OF QUARTER 2**		

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 3**	**Pacing:**

Unit/Organizing Strand: Organization & Development of Living Organisms

Essential Question(s): What are characteristics of living things? How do plant cells differ from animal cells? How are living things organized? How do living things maintain homeostasis? What are the components of the cell theory? How does the structure of major organelles accommodate the function of the organelle?

Benchmarks	**Standards**		**Resources/Activities**
SC.6.L.14.2 FCAT Not taught again in MS, EXTREMELY important foundation for HS Biology. Students will be able to identify, describe/explain the components of cell theory. Students will describe how cells undergo similar processes to maintain homeostasis	Investigate & 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, & cells are the basic unit of life. **Misconception**: ALL cells are the same size and shape		**C Palms:** Investigate Cell Theory**:** ID#40202 **Biology4Kids.com:** cells **Media:** **Khanacademy.com**: "Parts of a Cell". **You Tube: Cell Theory Rap:** http://www.youtube.com/watch?v=UP_vX6ipOb4 **Bozemanscience.com:** "The Wacky History of the Cell" "Cellular Organelles" "Classification of Life" **You Tube: Cell Theory Clip:** https://www.youtube.com/watch?v=4OpBylwH9DU **Simulation:** For cells: http://www.cellsalive.com/cells/3dcell.htm
SC.6.N.2.2 FCAT Students will explain that scientific explanations are based on evidence, logic, predictions & identify instances in history of science in which scientific knowledge changed as a result of new evidence.	Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered.		
SC.6.N.3.1	Recognize & explain that a scientific theory is a well-supported & widely accepted explanation of nature & is not simply a claim posed by an individual. **Comment:** Students will be able to explain the difference between theories and laws.		
SC.6.N.3.4	Identify the role of models in the context of the 6th grade science benchmarks.		

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter: 3**	**Pacing:**

Unit/Organizing Strand: Diversity & Evolution of Living Organisms, Organization & Development of Living Organisms

Essential Question(s): What characteristics do all living things share? How are living things organized? What are some of the major structures of the human body?

Benchmarks	**Standards**		**Resources/Activities**
SC.6.L.14.3 **Assessed as SC.6.L.14.2.**	Recognize & explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, & reproducing. **Misconception:** Cells of living organisms do not grow or repair, there are no single celled organisms.		**Activities/Resource** Create a graphic comparing/contrasting cell organelles. Do the same for plant/animal cells. Write a brief explanation of structure to function for each**.**
SC.912.L.14.2	Relate structure to function for the components of plant & animal cells. Explain the role of the cell membrane as a highly selective barrier (passive/active transport).		**Media:** **Khanacademy.com**: "Parts of a Cell".
SC.912.L.16.14	Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells & its importance in maintaining chromosome number during asexual reproduction.		**Bozemanscience.com:** "The Wacky History of the Cell" "Cellular Organelles" "Classification of Life"
SC.6.L.14.4 FCAT EXTREMELY important foundation for HS Biology. Students will be required to compare/contrast organelles in plant/animal cells.	Compare & contrast the **structure & function** of major organelles of plant & animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria & vacuoles. **Comment:** Teach that the function of the ribosome is to produce proteins for the cell.		
SC.912.L.14.3	Compare/contrast general structures of plant & animal cells. Compare/contrast general structures of prokaryotic & eukaryotic cells.		**Simulation:** For cells: http://www.cellsalive.com/cells/3dcell.htm
SC.6.L.15.1 FCAT	Analyze & describe **how & why** organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains. **Comment:** It is not required that you teach specific characteristics of individual types of organisms. It is not required that you teach an organism's scientific name. **END OF QUARTER 3**		**Biology4Kids.com:** "Plants", "Animal Systems"

Course# 2002050	**Course: ADV** 6th grade Sci	**Quarter:** 4	**Pacing:**

Unit/Organizing Strand: Diversity & Evolution of Living Organisms, Organization & Development of Living Organisms

Essential Question(s): What characteristics do all living things share? How are living things organized? What are some of the major structures of the human body and what functions do the systems of the body serve?

Benchmarks	**Standards**		**Resources/Activities**
SC.6.L.14.1 FCAT This standard is not taught again in MS. **SC.6.L.14.5 FCAT** Also assesses SC.6.L.14.6. Students will identify/describe how the major systems of the body interact to maintain homeostasis. Students will compare/contrast types of infectious agents that affect the human body. **SC.6.L.14.6** **Also assesses SC.6.L.14.5.** **HE.6.C.1.3** **HE.6.C.1.5**	Describe & identify patterns in the hierarchical organization of organisms from atoms to molecules & cells to tissues to organs to organ systems to organisms. Identify & investigate the **general functions** of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, & musculoskeletal) & describe ways that these systems interact with each other to maintain homeostasis. **Comment:** NOT REQUIRED to teach structure or function of organs. Compare & contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi & parasites. **Remarks:** Explain how body systems are impacted by hereditary factors & infectious agents. Identify environmental factors that affect personal health. **Remarks**: Air & water quality, availability of sidewalks, contaminated food, road hazards. Explain how body systems are impacted by hereditary factors & infectious agents. **Remarks:** Cystic fibrosis affects respiratory & digestive system, influenza affects the respiratory system, sickle-cell anemia affects the circulatory system. **End quarter 4**		**Bozemanscience.com** "Viruses" "Bacteria" "Nervous system" "Circulatory system" "Immune system" "Respiratory system" "Digestive system" **You Tube: Amoeba sisters:** "Human Body Systems: The 11 Champions", "Viruses: Viral Replication and the Mysterious Common Cold", "Bacteria: The Good, The Bad, the Kinda Gross". **Nova: "Virus Wars"** http://www.pbs.org/wgbh/nova/body/virus-wars.html **Activity:** Create a flowchart that shows the flow from atoms to organisms. **Research** a fungal disease: athlete's foot.