St. Johns County School District
2015-2016 School Year
Course: 2002110

Advanced 8th Grade Science

Curriculum Map Terms & Use

Text: Pearson Interactive Science Course 3. 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 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 student to evaluate/analyze information. For direct correlation of the standards to the standards within the map, visit: http://www.cpalms.org/

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 acquired.

Key Terms: Students should demonstrate fluency in vocabulary that is intrinsic to the course.

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

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

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

Resources & Activities: Are suggested. Teacher should proof the resources. Best practice is to provide inquiry and/or follow up labs or activities, non-fiction text and/or enrichment activities for foundational or important topics. **For resources on CPALMS, visit:** www.cpalms.org

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 1	**Pacing:**
Unit/Organizing Strand: Florida Standards for Reading in Science & Technical Subjects			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
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.		
LAFS.68.RST.4.10	By end of grade 8, read & comprehend science texts in the grade 6-8 text complexity band independently & proficiently.		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter: 1**	**Pacing:**
Unit/Organizing Strand: Florida Standards for Writing in History, Science & Technical Subjects			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
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# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 1	**Pacing:**
Unit/Organizing Strand: Florida Standards for Writing in History, Science & Technical Subjects			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
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.		
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# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 1	**Pacing:**
Unit/Organizing Strand: Florida Standards for Speaking and Listening from Language Arts Standards			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
LAFS.8.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.8.SL.1.2	Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g, social, commercial, political) behind its presentation.		
LAFS.8.SL.1.3	Delineate a speaker's argument & specific claims, evaluating the soundness of the reasoning & the relevance & sufficiency of the evidence.		
LAFS.8.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.8.SL.2.5	Include multimedia components & visual displays in presentations to clarify claims & findings & emphasize salient points.		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 1	**Pacing:**
Unit/Organizing Strand: Math Standards from the Florida Math Standards**:** Functions			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
MAFS.8.F.2.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.		
MAFS.8.G.3.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 1	**Pacing:**
Unit/Organizing Strand: Nature of Science			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
SC.8.N.1.1: **FCAT** Students will evaluate a scientific investigation using evidence of scientific thinking/problem solving. Students will identify test variables & outcome variables in a given investigation, they will analyze data to make predictions/defend conclusions.	Define a problem from the 8th grade curriculum using appropriate reference materials to support scientific understanding, plan & carry out scientific investigations of various types, such as systematic observations or experiments, identify variables (independent/manipulated, control, etc.), collect & organize data (qualitative & quantitative), interpret data in charts, tables & graphics, analyze information, make predictions & defend conclusions. **Comment:** Go over scientific processes (observing, inferring, etc.), metric tools/most appropriate unit of measure, units & prefixes in beginning & throughout the year (ex.: volume, grams, meter, density, cm, mL, etc.) Mass/weight should be touched upon but taught in q3 with gravity. **Not necessary to teach**: metric conversions (converting from 1 unit of metrics to another OR converting from metric to standard), accuracy/precision, mean, median, mode, significant figures, and percent error.		**Media Resource: Bozemanscience.com**: "Scientific Method". "Asking Questions & Designing Problems" "Planning & Carrying Out Investigations" "Obtaining, Evaluating & Communicating Information" **(Higher level)**
SC.8.N.1.2 Assessed as SC.7.N.1.2: students will differentiate between repetition & replication.	Design & conduct a study using repeated trials & replication		
SC.8.N.2.2 Not FCAT assessed SC.8.N.1.6 Assessed as SC.6.N.2.2	Discuss what characterizes science & its methods. **(see SC.8.N.1.6 & SC.6.N.2.2)** **Remarks:** Science is the systematic, organized inquiry that is derived from observations & experimentation that can be verified through testing to explain natural phenomena.		**Help to teach independent/dependent variables**: D R Y MIX
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, & the application of imagination in devising hypotheses, predictions, explanations & models to make sense of collected evidence.		
SC.8.N.1.5 Assessed as SC.7.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.		
SC.8.N.1.3 Assessed as SC.8.N.1.1	Use phrases such as "results support" or "fail to support" in science understanding that science does not offer conclusive proof of a knowledge claim.		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 1	**Pacing:**
Unit/Organizing Strand: Matter			
Essential Questions: What is matter—what makes it up? What are properties of matter?			

Benchmarks	**Standards**		**Resources**
SC.8.P.8.7 Assessed as SC.8.P.8.5	Explore the scientific theory of atoms (also known as the atomic theory) by recognizing that atoms are the smallest unit of an element & are composed of sub-atomic particles (electrons surrounding a nucleus containing protons & neutrons). **Comment:** Teach the charges and locations of the subatomic particles, atomic number, and mass number. **NOT** necessary to teach**:** isotopes.		**Media Resources:** Bozemanscience.com: "Matter", "States of Matter", "Properties of Matter", "The History of the Atom".
SC.8.P.8.1 Assessed as SC.8.P.8.5	Explore the scientific theory of atoms (also known as the atomic theory) by using models to explain the motion of particles in solids, liquids & gases.		**Mr. Edmonds Songs:** "Density"
SC.912.P.8.4	Explore the scientific theory of atoms (known as the atomic theory) by describing the structure of atoms in terms of protons, neutrons & electrons and differentiate among these particles in terms of their mass, electrical charge & locations within the atom.		
SC.8.N.3.2 Assessed as SC.7.N.3.1	Explain why theories may be modified but are rarely discarded.		**Simulations:** http://phet.colorado.edu/ "Build an Atom " , "Density"
SC.8.N.3.1 Not FCAT assessed.	Select models useful in relating the results of their own investigations.		
SC.8.P.8.4FCAT Also assesses SC.8.P.8. Items may require use of the density formula to calculate density, mass or volume when comparing substances. Items addressing solubility may include terms: solvent, solute, saturation.	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured: for example: density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample. **Comment:** Goal is for student to understand that basic physical properties allow us to compare/classify materials. Touch on solubility but you will go into detail when teaching SC.8.P.8.9 (p.12). **From FCAT specs:** Items require the use of the density formula to calculate density, mass, or volume. (teach use of the triangle or circle to manipulate formula) **Misconception:** Boiling point, density, volume and melting points are chemical properties.		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 1	**Pacing:**
Unit/Organizing Strand: Matter			
Essential Questions: How does matter change?			

Benchmarks	**Standards**		**Resources**
SC.912.P.8.1	Differentiate among the 4 states of matter. **Remarks:** Differentiate in terms of energy, particle motion & phase transitions.		**Media Resource:** Bozemanscience.com: "Physical & Chemical Changes"
SC.8.P.8.3 Assessed as SC.8.P.8.4	Explore & describe the densities of various materials through measurement of their masses and volumes.		
SC.8.P.9.2 FCAT Also assesses SC.8.P.9.1 & SC.8.P.9.3 Students will differentiate between physical and chemical changes. Students will explain that mass is conserved when substances undergo physical and chemical changes, according to the law of conservation of mass. Students will describe how temperature influences chemical changes.	Differentiate between physical changes and chemical changes. **Comment:** Teach physical changes here, introduce chemical changes, which will be taught more fully in quarter 2. (p.12)		
SC.8.P.8.2 Assessed as SC.6.P.13.1	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object & is distinct from, though proportional to, mass. **Comment:** touch on this but it will be taught in more detail when you teach SC.8.E.5.4 (p.15).		
SC.8.N.1.4 Assessed as SC.8.N.1.1	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data		
	END OF QUARTER 1		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 2	**Pacing:**
Unit/Organizing Strand: Matter			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
SC.8.P.8.6 Assessed as SC.8.P.8.5 **SC.8.P.8.5 FCAT** Also assesses SC.8.P.8.1, SC.8.P.8.6, SC.8.P.8.7, SC.8.P.8.8, SC.8.P.8.9 Students will describe how elements combine in a multitude of ways to produce compounds that make up all living and nonliving things. Students will describe the motion of particles in solids, liquids, and/or gases. Students will explain that elements are grouped in the periodic table according to similarities of their properties. Students will explain that atoms are the smallest unit of an element and are composed of subatomic particles. Students will identify common examples of acids, bases, and/or salts. Students will compare, contrast, and/or classify the properties of compounds, including acids and bases. Students will differentiate among pure substances, mixtures, and solutions. Items will NOT assess chemical bonding. Items referring to subatomic particles will only assess protons, neutrons, electrons. **SC.912.P.8.5**	Recognize that elements are grouped in the periodic table according to similarities of their properties. **Comment:** Teach the areas & groups of the periodic table: metals, non-metals and metalloids & that each group typically has similar properties due to # of valence electrons. Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living & nonliving things that we encounter. **Remarks**: Demonstrate with atomic models how atoms can combine in many ways. Explain why there are many, but limited, combinations. Use models to demonstrate the conservation of mass in modeled chemical reactions. **Comment:** Students should understand the difference between an element and compound and understand that a metal and non-metal combine to form ionic compounds, two non-metals form covalent compounds. Lewis dot structures may be useful in assisting students in understand the mechanisms of bonding. *Be sure that students understand what a subscript is and what it infers.* Relate properties of atoms & their position in the Periodic Table to the arrangement of their electrons. **Remarks:** Use the periodic table & electron configuration to determine an element's number of valence electrons & its chemical & physical properties. Explain how chemical properties depend almost entirely on the configuration of the outer electron shell.		**Media:** Bozemanscience.com: "Atoms & the Periodic Table", "Tour of the Periodic Table". **Mr. Edmonds Song:** (You Tube) "Chemical Bonds Song", "The Periodic Table Song" "Groups and Periods Song" **Simulations:** **http://phet.colorado.edu/** "Build an Atom"

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 2	**Pacing:**

Benchmarks	**Standards**		**Resources**
SC.912.P.8.7	Interpret formula representations of molecules & compounds in terms of composition & structure. **Remarks:** Write chemical formulas for simple covalent, ionic & molecular compounds. Predict formulas of ionic compounds based on the number of valence electrons & the charges on the ions.		**Mr. Edmonds Songs** (You Tube): "Solutions". **Activity:** Write about the physical & chemical changes that occur when a wax candle burns. Explain how you decided how to classify each. **Media:** Bozemanscience.com: "Physical & Chemical Changes".
SC.8.P.8.8 Assessed as SC.8.P.8.5	Identify **basic** examples of and compare and classify the properties of compounds, including acids, bases, and salts. **Comment:** Student should be able to recognize basic examples of ionic and covalently bonded compounds & know properties of the compounds. Students should understand basic properties of acids, bases (acids are pH of 0-6 and are corrosive, etc.) Students should understand what a salt is & that it is a product of a neutralization reaction.		
SC.912.P.8.11	Relate acidity & basicity to hydronium & hydroxyl ion concentration& pH. Remarks: Use data to illustrate/explain the pH scale to characterize acid & base solutions, compare/contrast strengths of various common acids & bases.		
SC.8.P.8.9 Assessed as SC.8.P.8.5	Distinguish among mixtures (including solutions) & pure substances. **Comment:** Refer back to standard SC.8.P.8.4 on page 9. Teach solvent, solute, solubility here. **Remarks**: Pure substances include elements & compounds. Mixtures are classified as heterogeneous (mixtures) or homogeneous (solutions).		
SC.8.P.9.2 FCAT Also assesses SC.8.P.9.1 & SC.8.P.9.3 Students will differentiate between physical and chemical changes.	Differentiate between physical changes and chemical changes. **Comment:** Revisit physical changes (p10), teach chemical changes & differentiate between changes & properties.		
SC.912.P.8.2	Differentiate between physical & chemical properties & physical & chemical changes of matter. **Remarks**: Discuss volume, density, conductivity, reactivity, molecular composition, freezing melting, etc. Describe simple lab techniques that can be used to separate homogeneous and heterogeneous mixtures (filtration, distillation,etc,)		
SC.8.P.9.3 Assessed as SC.8.P.9.2 Students will describe how temperature influences chemical changes. (SC.8.P.9.2)	Investigate & describe how temperature influences chemical changes. **END OF QUARTER 2**		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 3	**Pacing:**

Unit/Organizing Strand: Matter

Benchmarks	**Standards**		**Resources**
SC.8.L.18.1 Assessed as SC.8.L.18.4.	Describe & investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll, production of food, release of oxygen. **Comment:** Students should be able to identify reactants and products and the equation for photosynthesis. **Misconception:** Water and substances in the soil is food for plants.		**Media:** Bozemanscience.com: "Photosynthesis" "Cellular Respiration"
SC.912.L.18.7	Identify the reactants, products and basic functions of photosynthesis.		**Mr. Edmonds Songs** (You Tube) "The Photosynthesis Song"
SC.912.L.18.8	Identify the reactants, products and basic functions of aerobic & anaerobic cellular respiration.		
SC.8.L.18.2 Assessed as SC.8.L.18.4.	Describe & investigate how cellular respiration breaks down food to provide energy & releases carbon dioxide. **Comment:** Students need to understand that ALL living things—**including plants**--undergo cellular respiration. Students should be able to identify reactants and products in cellular respiration & see the interrelatedness of photosynthesis and cellular respiration. **Connection**: Students learned about mitochondria, cytoplasm in grade 6. **FCAT review suggestion:** Bring in plant cells and energy transformation when teaching these standards.		**www.nbclearn.com:** Chemistry Now: The Chemistry of Green: Chlorophyll
SC.912.L.18.9	Explain the interrelated nature of photosynthesis and cellular respiration.		**Simulation-Photosynthesis** http://www.johnkyrk.com/photosynthesis.html

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 3	**Pacing:**
Unit/Organizing Strand: Matter			

Benchmarks	**Standards**		**Resources**
SC.8.L.18.4 FCAT Also assesses SC.8.L.18.1, SC.8.L.18.2, SC.8.L.18.3. Students will explain that living systems obey the law of conservation of mass & law of conservation of energy. Students will describe and/or explain the general processes of photosynthesis or cellular respiration. **SC.8.L.18.3** Assessed as SC.8.L.18.4. Students will describe how matter is transferred in the carbon cycle.	Cite evidence that living systems follow the Laws of Conservation of Mass & Energy. **Connection:** Law of Conservation of Energy is covered in grades 6/7. Construct a scientific model of the carbon cycle to show how matter & energy are continuously transferred within & between organisms & their physical environments. **FCAT review suggestion:** Bring in ecological relationships (food webs, etc.) here.		**Media:** Bozemanscience.com: "Photosynthesis" "Cellular Respiration" **Mr. Edmonds Songs** (You Tube) "The Photosynthesis Song" **www.nbclearn.com:** Chemistry Now: The Chemistry of Green: Chlorophyll **Simulation-Photosynthesis** http://www.johnkyrk.com/photosynthesis.html

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 3	**Pacing:**
Unit/Organizing Strand: Matter			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
SC.8.E.5.1 **Assessed as SC.8.E.5.3** **SC.8.E.5.2** **Assessed as SC.8.E.5.3** **SC.8.E.5.3 FCAT** **Also assesses SC.8.E.5.1 & 5.2** Students will compare and/or contrast the relative distance, relative size, and general composition of astronomical bodies in the universe. Students will describe distances between objects in space in the context of light and space travel.	Recognize that there are enormous distances between objects in space & apply our knowledge of light & space travel to understand this distance. Comment: Teach AU, light years and appropriate uses for these. **NOT** required that you teach parallax. Recognize that the universe contains many billions of galaxies & that each galaxy contains many billions of stars. Distinguish the hierarchical relationships between planets & other astronomical bodies relative to solar system, galaxy, and universe, including distance, size & composition. **Comment**: Be sure to compare bodies of the solar system to each other & the universe.		**Writing:** Are there galaxies other than the Milky Way that can be seen with the unaided eye? Explain and justify, citing facts. What is the difference between the universe & the observable universe? **Simulation**: the scale of the universe http://htwins.net/scale2/ **Media:** **www.nbclearn.com:** Science Behind the News: Impacts on Jupiter **Veritasium:** Distance between Earth and Moon https://www.youtube.com/watch?v=Bz9D6xba9Og&list=PL16649CCE7EFA8B2F&index=26

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 3	**Pacing:**
Unit/Organizing Strand: Matter			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
SC.8.E.5.4 Assessed as SC.8.E.5.7	Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, & the solar systems & in determining their motions. Connection: Students learned about gravity in 6th grade.		**Media:** http://science360.gov "Birth of a Planet"
SC.8.P.8.2 Assessed as SC.6.P.13.1	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object & is distinct from, though proportional to, mass.		**Mr. Edmonds Song** (You Tube): "Mass vs. Weight"
SC.8.E.5.5 **FCAT** Also assesses SC.8.E.5.6 Items addressing stars will focus on main sequence stars & their properties.	Describe & classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, & luminosity (absolute brightness). **Comment:** Not necessary to teach stellar evolution or specific chemical composition of stars.		
SC.8.E.5.6 Assessed as SC.8.E.5.5. Students will evaluate models of solar properties	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.		
	END QUARTER 3		

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 4	**Pacing:**
Unit/Organizing Strand: The Universe			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
SC.8.E.5.8 Assessed as SC.8.E.5.7 **SC.8.E.5.7 FCAT** Also assesses SC.8.E.5.4 & SC.8.E.5.8 Items will not assess relative distance of objects in Solar System from the Sun. Items will not assess the chemical composition of the atmospheres. **SC.8.E.5.9 FCAT** Students will explain the effect of astronomical bodies on each other, including the Sun's and/or the Moon's effects on Earth. **SC.912.E.5.4**	Compare various historical models of the Solar System, including geocentric and heliocentric. Compare & contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions. Explain the impact of objects in space on each other including: the Sun on the Earth including seasons & gravitational attraction and the Moon on the Earth, including phases, tides, and eclipses, and the relative position of each body. Explain the physical properties of the Sun and its dynamic nature and connect them to conditions & events on the Earth. **Remarks:** Describe physical properties of the sun (sunspot cycles, solar flares, prominences, layers of the Sun,etc.) and the impact of the Sun as the main source of external energy for the Earth.		**Writing:** Are there galaxies other than the Milky Way that can be seen with the unaided eye? Explain and justify, citing facts. What is the difference between the universe & the observable universe? **Media:** **http://science.discovery.com** "The Sun" "Solar system" **Simulations:** http://www.jgiesen.de/GeoAstro/GeoAstro.htm

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 4	**Pacing:**
Unit/Organizing Strand: Matter			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
SC.8.E.5.10 Assessed as SC.7.N.1.5 **SC.8.E.5.11** Assessed as SC.7.P.10.1 **SC.8.N.2.1** Not assessed on FCAT.	Assess how technology is essential to science for such purposes as access to outer space & other remote locations, sample collection, measurement, data collection & storage, computation, communication of information. Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, & hazards & recognize its application to an understanding of planetary images & satellite photographs. **Connections:** Students learned about wave properties & various parts of the electromagnetic spectrum (infrared, UV light, etc.) in 7th grade. Distinguish between scientific and pseudoscientific ideas. **Remarks**: Science is testable, pseudo-science is not science, seeks confirmations (e.g. astrology is pseudoscience).		**Solar Space Telescope:** www.pbs.org/wgbh/nova/video **Writing:** Write a paragraph arguing for or against the advancement of technology, using at least 3 examples that support your point. **Writing:** Predict how our oceans would be affected if gravitational pull on us from the moon were to lessen.

Course# 2002110	**Course: ADV** 8th grade Science	**Quarter:** 4	**Pacing:**
Unit/Organizing Strand:			
Essential Questions:			

Benchmarks	**Standards**		**Resources**
SC.8.E.5.12 Not FCAT assessed. **SC.8.N.4.1** Not FCAT assessed. **SC.8.N.4.2** Not FCAT assessed.	Summarize the effects of space exploration on the economy & culture of Florida. Explain that science is one of the processes that can be used to inform decision making at the community, state, national & international levels. Explain how political, social & economic concerns can affect science & vice versa. **END SEMESTER 2**		**Media:** http://bigthink.com Bill Nye: "Why We Explore"