

8th Grade Science

GRADE 8 LIFE SCIENCE CURRICULUM MAP 2015-2016

Orientation/Safety/Unit 1 - Lesson 1 What is Science? – 5 DAYS	Unit 4 – Lesson 2 Temperature – 5 DAYS mini-assessment #3
Unit 1 - Lesson 2 Scientific Knowledge – 5 DAYS	Unit 4 – Lesson 3 Thermal Energy and Heat - 5 DAYS
Unit 1 - Lesson 3 Scientific Investigations – 5 DAYS	Unit 4 – Lesson 4 Kinetic and Potential Energy – 7 DAYS
Unit 1 - Lesson 4 Representing Data – 5 DAYS	Unit 4 – Lesson 5 Forces, Acceleration, Motion and Speed – 5 DAYS Assessment #4
Unit 1 - Lesson 5 Science and Society - 4 DAYS Assessment #1	Unit 5 –Lesson 1 Interactions of Life – 5 DAYS
Unit 2 – Lesson 1 Introduction to Matter – 5 DAYS	Unit 5 –Lesson 2 The Nonliving Environment – 5 DAYS
Unit 2 – Lesson 2 Properties of Matter – 5 DAYS	Unit 5 –Lesson 3 Ecosystems – 7 DAYS mini-assessment #4
Unit 2 – Lesson 3 Physical and Chemical Changes – 7 DAYS	Unit 5 –Lesson 4 Traits and Adaptation – 5 DAYS
Unit 2 – Lesson 4 States of Matter – 5 DAYS mini-assessment #1	Unit 5 –Lesson 5 Interactions of Human Systems – 7 DAYS Assessment #5
Unit 2 – Lesson 5 Pure Substances and Mixtures – 5 DAYS	Family Life/Human Sexuality Curriculum BEEP – 5 DAYS
Unit 2 – Lesson 6 The Atom – 5 DAYS	HIV/AIDS Curriculum BEEP – 5 DAYS
Unit 2 – Lesson 7 The Periodic Table – 7 DAYS Assessment #2	Optional Science Activities – Remainder of School Year
Unit 3 – Lesson 1 Plate Tectonics – 5 DAYS	
Unit 3 – Lesson 2 Earthquakes and Volcanoes – 5 Days mini-assessment #2	
Unit 3 – Lesson 3 Clue’s to Earth Past– 5 DAYS	
Unit 3 – Lesson 4 Geologic Time - 7 DAYS Assessment #3	
Unit 4 – Lesson 1 Energy Conversions and Conservation – 5 DAYS	

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Unit #: 1 Big Idea: 1 - The Practice of Science; 2 - Characteristics of Scientific Knowledge; 3 – The Roles of Theories, Laws, Hypotheses, and Models Holt Science Fusion 2011	Pacing: 24 Days
Essential Questions: How is science different from other fields of study? (Lesson 1) How do we know about the world we live in? (Lesson 2) How do scientists work? (Lesson 3) In what ways can you organize data to fully understand them? (Lesson 4) How does science affect our lives? (Lesson 5)	Teacher Notes:

Concepts	Benchmarks: Objectives and Skills	Differentiated Instruction: Recommended Activities and Labs. (See BEEP for additional instructional strategies)	Key Terminology/ Vocabulary	Resources
Classroom orientation and safety procedures		Students sign and return Safety Contract	Goggles Apron Beaker Broken glass Fire blanket Eyewash	SBBC Broward Safety Manual Safety Contract Pages R16, R17 in Science Fusion: Physical Science
The Natural World Designing experiments Testable ideas Contributions of scientists	SC.8.N.1.5 Analyze the methods used to develop a scientific explanation as seen in different fields of science. SC.8.N.1.6 Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence. SC.8.N.2.1 Distinguish between scientific	<i>Explore Learning Gizmos:</i> <ul style="list-style-type: none"> • Growing Plants • Seed Germination • Force and Fan Carts • Effect of Temperature on Gender 	Science Empirical evidence	Florida Science Fusion: Lesson 1: What is Science www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/

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	and pseudoscientific ideas. (Not Assessed) SC.8.N.2.2 Discuss what characterizes science and its methods. (Not Assessed)			
Types of Scientific Explanations Good Scientific Sources	SC.8.N.3.1 Select models useful in relating the results of their own investigations. (Not Assessed) SC.8.N.3.2 Explain why theories may be modified but are rarely discarded.	Differentiated Instruction Strategies: (Advanced) Learning the Laws <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Growing Plants • Seed Germination • Force and Fan Carts • Pattern Finder • Effect of Environment on New Life Forms 	Theory Model Law	Florida Science Fusion: Lesson 2: Scientific Knowledge www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Types of scientific investigations Parts of scientific investigations Scientific methods	SC.8.N.1.1 Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. SC.8.N.1.2 Design and conduct a study using repeated trials and replication. SC.8.N.1.3 Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer	Advanced: Quick Lab, The Importance of Replication Counting Chocolate Chips in Cookies Lab: All about replication, allowing students to design the experiment, THEN talk about using the same procedures at the end. URL: http://serc.carlton.edu/files/sp/cause/conjecture/examples/directions_for_chips_ahoy.pdf <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Growing Plants • Seed Germination • Force and Fan Carts • Triple Beam Balance 	Experiment Observation Hypothesis Variable Data	Florida Science Fusion: Lesson 3: Scientific Investigations www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/

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	conclusive 'proof' of a knowledge claim. SC.8.N.1.4 Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	<ul style="list-style-type: none"> • pH Analysis • Mystery Powder Analysis 		
Making sense of Data Types of models	SC.8.N.3.1 Select models useful in relating the results of their own investigations. (Not Assessed)	<p>URL http://www.teachnology.com/worksheets/math/graph/</p> <p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Graphing Skills • Reaction Time 1 (Graphs and Statistics) • Describing Data Using Statistics 	Bar graph, Line graph, Circle graph Physical Model Mathematical Model	Florida Science Fusion: Lesson 4: Representing Data www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Science and Society	SC.8.N.4.1 Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels. (Not Assessed) SC.8.N.4.2 Explain how political, social, and economic concerns can affect science, and vice versa. (Not Assessed)	<p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Human Evolution: Skull Analysis • DNA Fingerprint • Star Spectra • Rainfall and Bird Beaks • Greenhouse Effect 		Florida Science Fusion: Lesson 5: Science and Society www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/

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Unit #: 2 Big Idea: 8 – Properties of Matter, 9 – Changes in Matter Holt Science Fusion 2011	Pacing: 39 Days
Essential Questions: What properties define matter? (Lesson 1) What are Physical and Chemical Properties of Matter? (Lesson 2) What are physical and chemical changes in matter? (Lesson 3) How do particles in solids, liquids, and gases move? (Lesson 4) How do pure substances and mixtures compare? (Lesson 5) What makes up an atom? (Lesson 6) How are elements arranged on the periodic table? (Lesson 7)	Teacher Notes:

Concepts	Benchmarks: Objectives and Skills	Differentiated Instruction: Recommended Activities and Labs. (See BEEP for additional instructional strategies)	Key Terminology/ Vocabulary	Resources
Measurement of Matter	SC.8.P.8.2: Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass. SC.8.P.8.3: Explore and describe the densities of various materials through measurement of their masses and volumes.	Density of Candy bars URL: http://www.prentice.org/ourpages/auto/2009/5/17/56561584/Density%20Sweet%20Density%20Lab.doc <i>Explore Learning Gizmos:</i> <ul style="list-style-type: none"> • Density Laboratory • Density via Comparison • Density Experiment: Slice and Dice • Determining Density via Water Displacement • Density • Weight and Mass 	Matter Mass Weight Volume Density	Florida Science Fusion: Lesson 1: Introduction to Matter www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Properties of Matter	SC.8.P.8.4: Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or	Quick Labs: - Natural vs. Synthetic Fibers Advanced: Guided Inquiry - Will it sink or float?	Physical property Chemical property	Florida Science Fusion: Lesson 2: Properties of Matter www.floridastandards.org

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	electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample.	<p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Density Laboratory • Density • Mystery Powder Analysis • pH Analysis • Mineral Identification • Circuit Builder 		<p>www.thinkcentral.com</p> <p>Test Specs http://secondaryscience.pds-hrd.wikispaces.net/</p>
<p>Changes in observable properties</p> <p>Evidence of Chemical Changes</p> <p>Conserving mass</p>	<p>SC.8.P.9.1: Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.</p> <p>SC.8.P.9.2: Differentiate between physical changes and chemical changes.</p> <p>SC.8.P.9.3: Investigate and describe how temperature influences chemical changes.</p> <p>SC.8.N.1.6: Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.</p>	<p>Nylon Rope Trick – Innovative Science activity from Fisher Scientific. Product # S76784A</p> <p>http://www.fishersci.com:80/ecom/servlet/fsproductdetail?storeId=10652&productId=696807&catalogId=29104&matchedCatNo=S76784A&endecaSearchQuery=%23store%3DScientific%23N%3D0%23rpp%3D15&fromSearch=1&searchKey=S76784A&highlightProductsItemsFlag=Y</p> <p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Phases of Water • Mystery Powder Analysis • Mineral Identification • Balancing Chemical Equations 	<p>Physical change</p> <p>Chemical change</p> <p>Law of Conservation of Mass</p> <p>Precipitate</p>	<p>Florida Science Fusion: Lesson 3: Physical and Chemical Changes</p> <p>www.floridastandards.org</p> <p>www.thinkcentral.com</p> <p>Test Specs http://secondaryscience.pds-hrd.wikispaces.net/</p>

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Kinetic Theory of Matter	<p>SC.8.N.1.1: Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.</p> <p>SC.8.N.3.1: Select models useful in relating the results of their own investigations. (Not Assessed)</p> <p>SC.8.P.8.1: Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.</p>	<p>States of Matter WebQuest URL: www.whitley.k12.ky.us/pages/mwilson/States%20of%20Matter%20Web-quest.doc</p> <p><i>Explore Learning Gizmos:</i></p> <ul style="list-style-type: none"> • Phase Changes • Temperature and Particle Motion 	<p>Solid</p> <p>Liquid</p> <p>Gas</p>	<p>Florida Science Fusion: Lesson 4: States of Matter</p> <p>www.floridastandards.org</p> <p>www.thinkcentral.com</p> <p>Test Specs http://secondaryscience.pds-hrd.wikispaces.net/</p>
Classifying matter	<p>SC.8.P.8.5: 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 and nonliving things that we</p>	<p>Interactive pH Panel – URL: www.miamisci.org/ph/</p> <p><i>Explore Learning Gizmos:</i></p> <ul style="list-style-type: none"> • Bohr Model of Hydrogen • Element Builder • Electron Configuration • Ionic Bonding 	<p>Atom</p> <p>Element</p> <p>Compound</p> <p>Mixture</p> <p>Pure substance</p> <p>Heterogeneous</p> <p>Homogenous</p>	<p>Florida Science Fusion: Lesson 5: Pure Substances and Mixtures</p> <p>www.floridastandards.org</p> <p>www.thinkcentral.com</p>

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	<p>encounter.</p> <p>SC.8.P.8.8: Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.</p> <p>SC.8.P.8.9: Distinguish among mixtures (including solutions) and pure substances.</p>	<ul style="list-style-type: none"> • Covalent Bonding • Balancing Chemical Equations • Solubility and Temperature • Colligative Properties 		<p>Test Specs</p> <p>http://secondaryscience.pds-hrd.wikispaces.net/</p>
Atomic structure	<p>SC.8.P.8.7: Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).</p>	<p>Atomic Structure Lab URL: http://www.ttaonline.org/dsol/Science/Sci6_OT02LN02.pdf</p> <p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Bohr Model of Hydrogen • Element Builder • Electron Configuration 	<p>Atom</p> <p>Proton</p> <p>Neutron</p> <p>Nucleus</p> <p>Electron</p> <p>Electron cloud</p> <p>Atomic number</p> <p>Mass number</p>	<p>Florida Science Fusion: Lesson 6: The Atom</p> <p>www.floridastandards.org</p> <p>www.thinkcentral.com</p> <p>Test Specs</p> <p>http://secondaryscience.pds-hrd.wikispaces.net/</p>
Arrangement of the periodic table	<p>SC.8.P.8.6: Recognize that elements are grouped in the periodic table according to similarities of their properties.</p>	<p>Periodic Table Activity – URL: http://science-class.net/Lessons/Chemistry/Periodic%20Table/PT_Project.pdf</p> <p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Element Builder • Electron Configuration 	<p>Periodic Table</p> <p>Chemical symbol</p> <p>Average atomic</p> <p>Metal</p> <p>Nonmetal</p> <p>Metalloid</p> <p>Group</p> <p>Period</p>	<p>Florida Science Fusion: Lesson 7: The Periodic Table</p> <p>www.floridastandards.org</p> <p>www.thinkcentral.com</p> <p>Test Specs</p> <p>http://secondaryscience.pds-hrd.wikispaces.net/</p>

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Unit #: 3 Big Idea: 10 – Forms of Energy Holt Science Fusion 2011	Pacing: 22 Days
Essential Questions: What are waves? (Lesson 1) How can we describe a wave? (Lesson 2) What is the relationship between a various EM waves? (Lesson 3) How does light interact with matter? (Lesson 4)	Teacher Notes:

Concepts	Benchmarks: Objectives and Skills	Differentiated Instruction: Recommended Activities and Labs. (See BEEP for additional instructional strategies)	Key Terminology/ Vocabulary	Resources
Waves How Waves Transfer Energy Types of Waves	SC.7.N.1.1: Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. SC.7.P.10.3: Recognize that light waves, sound waves, and other waves move at different speeds in different materials.	Slinky Activities - http://www.nscdiscovery.org/TeacherTools/Adobe/Slinky-Waves.pdf <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Earthquake - Determination of Epicenter • Sound Beats and Sine Waves • Longitudinal Waves • Ripple Tank • Herschel Experiment • Star Spectra • Photosynthesis Lab 	Medium Longitudinal Wave Transverse Wave Mechanical Wave Electromagnetic Wave	Florida Science Fusion: Lesson 1: Waves www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Describing Waves	SC.7.P.10.3: Recognize that light waves, sound waves, and other waves move at different speeds in different materials.	Wave Simulation http://www.classzone.com/books/ml_science_share/vis_sim/wslm05_pg18_graph/wslm05_pg18_graph.html <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Earthquake - Determination of 	Amplitude Wavelength Wave Period Frequency Hertz Wavefront Wave Speed	Florida Science Fusion: Lesson 2: Properties of Waves www.floridastandards.org www.thinkcentral.com

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		<p>Epicenter</p> <ul style="list-style-type: none"> • Sound Beats and Sine Waves • Longitudinal Waves • Ripple Tank 		<p>Test Specs http://secondaryscience.pds-hrd.wikispaces.net/</p>
<p>Nature of Light</p> <p>Color of Light</p> <p>Parts of the EM Spectrum</p> <p>EM Radiation</p>	<p>SC.7.P.10.1: Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors.</p>	<p>X-rays Lesson: http://www.colorado.edu/physics/2000/index.pl</p> <p>Electromagnetic Waves: http://www.colorado.edu/physics/2000/index.pl</p> <p>EM Spectrum Project http://galileo.phys.virginia.edu/Education/outreach/8thgradesol/ElectromagSpect.htm</p> <p>Frequencies of Colors/EM Waves Activity http://imagine.gsfc.nasa.gov/docs/teachers/lessons/roygbiv/roygbiv.html</p> <p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Herschel Experiment • Star Spectra • Photosynthesis Lab • Radiation 	<p>Radiation</p> <p>Electromagnetic Spectrum</p> <p>Infrared</p> <p>Ultraviolet</p>	<p>Florida Science Fusion: Lesson 3: The Electromagnetic Spectrum www.floridastandards.org www.thinkcentral.com</p> <p>Test Specs http://secondaryscience.pds-hrd.wikispaces.net/</p>
<p>How Matter interacts with Light</p>	<p>SC.7.P.10.2: Observe and explain that light can be reflected, refracted, and/or absorbed.</p> <p>SC.7.P.10.3: Recognize that light waves, sound waves, and other waves move at</p>	<p>Refraction Activity http://scifiles.larc.nasa.gov/text/kids/D_Lab/activities/scattering_light.html</p> <p><i>ExploreLearning Gizmos:</i></p>	<p>Transparent</p> <p>Translucent</p> <p>Opaque</p> <p>Absorption</p> <p>Reflection</p>	<p>Florida Science Fusion: Lesson 4: Interactions of Light www.floridastandards.org</p>

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	different speeds in different materials.	<ul style="list-style-type: none"> • Radiation • Color Absorption • Heat Absorption • Basic Prism • Refraction • Ray Tracing (Lenses) • Ray Tracing (Mirrors) • Laser Reflection 	Refraction Scattering	www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
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<p>Unit #: 4 Big Idea: 11 – Energy Transfer and Transformations Holt Science Fusion 2011</p>	<p>Pacing: 27 Days</p>
<p>Essential Questions: How is energy conserved? (Lesson 1) How is temperature related to kinetic energy? (Lesson 2) What is the relationship between heat and temperature? (Lesson 3)</p>	<p>Teacher Notes:</p>

Concepts	Benchmarks: Objectives and Skills	Differentiated Instruction: Recommended Activities and Labs. (See BEEP for additional instructional strategies)	Key Terminology/ Vocabulary	Resources
<p>Forms of energy</p> <p>Energy Conversion</p> <p>Energy Conservation</p>	<p>SC.7.P.11.2: Investigate and describe the transformation of energy from one form to another.</p> <p>SC.7.P.11.3: Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.</p>	<p>Baggie Science Activity: http://www.youth.net/cec/cecsci/cecsci.13.txt</p> <p>Newton’s Cradle demonstration: Fisher catalog number S94227 Science First, No.:40-135</p> <p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Potential Energy on Shelves • Roller Coaster Physics • Energy of a Pendulum • Air Track • Energy Conversion • Energy Conversion in a System • Inclined Planes – Sliding Objects • Magnetic Induction • Cell Energy Cycle 	<p>Energy transformation</p> <p>Law of Conservation of Energy</p> <p>Efficiency</p> <p>Chemical energy, Electromagnetic energy, mechanical energy, sound energy, Thermal energy</p>	<p>Florida Science Fusion: Lesson 1: Energy Conversion and Conservation www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/</p>
<p>Temperature</p> <p>Kinetic energy</p>	<p>SC.7.P.11.1: Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state.</p>	<p>Dancing Penny Demonstration: http://www.mcrel.org/whelmers/whelm03.asp</p>	<p>Kinetic theory of matter Temperature Degree</p>	<p>Florida Science Fusion: Lesson 2: Temperature www.floridastandards.org</p>

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Kelvin, Celsius, and Fahrenheit scales	SC.7.P.11.4: Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.	Ball and Ring Apparatus, demonstrate law of thermodynamics: Fisher Catalog # S41702, http://www.fishersci.com/ecom/servlet/fsproductdetail_10652_700398_29101_-1_0 <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Phase Changes • Temperature and Particle Motion 	Thermometer	www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Thermal energy and heat Understanding the relationship between heat, temperature and thermal energy	SC.7.P.11.1: Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state. SC.7.P.11.4: Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature. SC.7.N.1.1: Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	- Solar Bag Activity (\$16-\$30 online purchase): Suggested are http://www.stevespanglerscience.com/product/solar-bag or http://sciencekit.com/worldandrsquo%3Bs-largest-solar-bag/p/IG0027392/ Testing Materials for Conductivity: http://www.infinitepower.org/pdf/09-Lesson-Plan.pdf <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Phase Changes • Temperature and Particle Motion • Radiation • Conduction and Convection • Heat Absorption • Heat Transfer by Conduction • Calorimetry Lab 	Thermal energy Heat Calorie Conduction Conductor Insulator Convection Radiation	Florida Science Fusion: Lesson 3: Thermal Energy and Heat www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/

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<p>Unit #: 5 Big Idea: 11 – Energy Transfer and Transformations; 12 – Motion of Objects; 13 – Forces and Changes in Motion Holt Science Fusion 2011</p>	<p>Pacing: 34 Days</p>
<p>Essential Questions: How is mechanical energy conserved? (Lesson 1) How are distance, time, and speed related? (Lesson 2) How does motion change? (Lesson 3) What causes motion? (Lesson 4) How do objects move under the influence of gravity? (Lesson 5)</p>	<p>Teacher Notes:</p>

Concepts	Benchmarks: Objectives and Skills	Differentiated Instruction: Recommended Activities and Labs. (See BEEP for additional instructional strategies)	Key Terminology/ Vocabulary	Resources
<p>Transformations between kinetic and potential energy</p>	<p>SC.6.P.11.1: Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.</p>	<p>Happy/Sad balls - http://www.edufy.org/content/show/412</p> <p>Roller Coaster Builder: http://www.jason.org/digital_library/4851.aspx</p> <p><i>ExploreLearning Gizmos:</i></p> <ul style="list-style-type: none"> • Potential Energy on Shelves • Roller Coaster Physics • Energy of a Pendulum • Air Track • Inclined Planes – Sliding Objects • Pulley Lab 	<p>Energy Kinetic energy Potential energy Mechanical energy</p> <p>Law of Conservation of Energy</p>	<p>Florida Science Fusion: Lesson 1: Kinetic and Potential Energy www.floridastandards.org</p> <p>www.thinkcentral.com</p> <p>Test Specs http://secondaryscience.pds-hrd.wikispaces.net/</p>
<p>Formula for average speed (avg. speed = d/t)</p> <p>Constant speed vs changing</p>	<p>SC.6.P.12.1: Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.</p> <p>MA.6.A.3.6: Construct and analyze tables, graphs, and equations to describe</p>	<p>Motion Graphs http://www.mysciencesite.com/motion_graphs.pdf</p> <p>Domino Dash Activity – Measuring Speed http://www.science-class.net/</p>	<p>Position Reference point Motion Speed Vector Velocity</p>	<p>Florida Science Fusion: Lesson 2: Motion and Speed www.floridastandards.org</p> <p>www.thinkcentral.com</p>

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speed	linear functions and other simple relations using both common language and algebraic notation.	Lessons/Physics/Force_Motion/domino_dash.pdf <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Measuring Motion • Distance-Time Graphs • Distance-Time and Velocity-Time Graphs 		Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Changes in motion Calculate average acceleration	MA.6.A.3.6: Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	Acceleration Visualizations http://acme.highpoint.edu/~atitus/physlets/1Dmotion/x_t_graph.html Other Diagrams - http://acme.highpoint.edu/~atitus/physlets/1Dmotion/ <i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Distance-Time and Velocity-Time Graphs 	Acceleration Centripetal acceleration	Florida Science Fusion: Lesson 3: Acceleration www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Different kinds of Forces Force diagrams What causes motion?	SC.6.P.13.1: Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational. SC.6.P.13.3: Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both. MA.6.A.3.6: Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	Introduction to Forces http://www.science-class.net/Lessons/Physics/Force_Motion/forces_ws.pdf <i>ExploreLearning Gizmos</i> <ul style="list-style-type: none"> • Force and Fan Carts • Fan Cart Physics • Inclined Plane – Rolling Objects • Roller Coaster Physics 	Force Net force Inertia	Florida Science Fusion: Lesson 4: Forces www.floridastandards.org www.thinkcentral.com Test Specs http://secondaryscience.pds-hrd.wikispaces.net/
Effect of gravity on matter	SC.6.P.13.1: Investigate and describe types of forces including contact forces	Orbit simulator: Use your mouse to put a small object in Earth’s orbit:	Gravity Free fall	Florida Science Fusion: Lesson 5: Gravity and

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<p>Law of Universal Gravitation</p> <p>Orbits</p> <p>Formula: F=mg</p>	<p>and forces acting at a distance, such as electrical, magnetic, and gravitational.</p> <p>SC.6.P.13.2: Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.</p>	<p>http://www.colorado.edu/physics/2000/applets/satellites.html</p> <p><i>ExploreLearning Gizmos</i></p> <ul style="list-style-type: none"> • Gravity Pitch • Golf Range • Orbital Motion - Kepler's Laws • Solar System Explorer • Solar System • Gravitational Force • Free-Fall Laboratory 	<p>Orbit</p> <p>Microgravity</p>	<p>Motion</p> <p>www.floridastandards.org</p> <p>www.thinkcentral.com</p> <p>Test Specs</p> <p>http://secondaryscience.pds-hrd.wikispaces.net/</p>
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<p>Unit # 6: Family Life/Human Sexuality Curriculum BEEP and HIV/AIDS Big Idea:</p>	<p>Pacing: 10 Days</p>
<p>Essential Questions: FAMILY LIFE: 1. What are the structures of the male and female reproductive systems? How do they function? 2. How does an embryo develop into a baby? 3. What are the physical and emotional reasons for sexual feelings? 4. What steps can be utilized to make good decisions? 5. What is considered responsible dating behavior?</p>	<p>Essential Questions: HIV/AIDS: 1. What are STD's and how can they be prevented? 2. What are the symptoms of STD's or HIV? 3. What are the consequences of contracting an STD or HIV?</p>

Concepts	Resources	Benchmarks: Objectives and Skills	Differentiated Instruction: Recommended Activities and Labs. (See BEEP for additional instructional strategies)	Key Terminology/ Vocabulary
Family Life/Human Sexuality	All lessons are found in B.E.E.P. under the Learning Village. 6-12 Curriculum, Science, Family Life and HIV/AIDS		<i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Inheritance • Human Karyotyping 	Conception Embryo Family Relationship Femininity Fertilization Gonads Masculinity Ovulation Puberty
HIV/AIDS	All lessons are found in B.E.E.P. under the Learning Village. 6-12 Curriculum, Science, Family Life and HIV/AIDS		<i>ExploreLearning Gizmos:</i> <ul style="list-style-type: none"> • Disease Spread • Virus Lytic Cycle • Human Homeostasis • Drug Dosage 	Virus Disease Communicable Hygiene Pathogen Immunity