

**Thomas Edison Energy Smart Charter School**  
**6<sup>th</sup> Grade Science curriculum**  
**2015-2016**

**ALL UNITS - HOMEWORK:**

Each unit in Science will have homework assignments from the Science Fusion Workbooks and FOSS worksheets.

**ALL UNITS - QUIZZES:** Please anticipate at least 3 quizzes and 2 tests for a unit - mid assessment as well as unit assessment for each unit. The quizzes will not be announced as far in advance as tests.

Projects: At the End of each marking period, students will be assigned project aligning to the units that they did.

*ALL DATES LISTED ARE TENTATIVE*

<p><b>Unit Plan 1 - September – October</b></p> <p><b>Title:</b> Waves and Electromagnetic Radiations</p> <p><b>SLO:</b></p> <ul style="list-style-type: none"> <li>● Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.</li> <li>● Explain why we can see the color of an object in space but cannot hear sound.</li> <li>● Use ray diagrams to explain how refracted light and reflected light bring images of distant objects closer and enlarge things that are too small to be observed with an unaided eye.</li> <li>● Create a simple model that explains the mechanism for how wave pulses are used to save, transmit, and receive information.</li> <li>● Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.</li> <li>● Integrate qualitative scientific and technical information to support the claim that digital and transmit information than analog signals.</li> </ul>	<p>Major resources: Pearson Interactive Waves and Electromagnetic Radiations.</p>
<p><b>Project for Unit : Long term Project</b></p>	<p>Students build a model of pinhole camera and explain the functioning of the camera using all the concepts that they have learned.</p>

<p><b>Unit Plan 2 - Nov- December</b> Weather and Climate <b>SLO:</b></p> <ul style="list-style-type: none"> <li>• Develop a conceptual model to explain the mechanisms for the Sun’s energy to drive wind and the hydrologic cycle</li> <li>• Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions</li> <li>• Explain how variations in density result from variations in temperature and salinity drive a global pattern of interconnected ocean currents</li> <li>• Use a model to explain the mechanisms that cause varying daily temperature ranges in a coastal community and in a community located in the interior of the country.</li> <li>• Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.</li> </ul>	<p>Major resource: FOSS : Weather and Water</p>
<p>Project for Unit 2</p>	<p>CASE study : Sierra Nevada</p>

<p><b>Unit Plan 3 – Jan – Feb</b> <b>Space Systems</b> <b>SLO:</b></p> <ul style="list-style-type: none"> <li>• Generate and analyze evidence (through simulations or long term investigations) to explain why the Sun’s apparent motion across the sky changes over the course of a year.</li> <li>• Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.</li> <li>• Develop and use a model that shows how gravity causes smaller objects to orbit around larger objects at increasing scales, including the gravitational force of the sun causes the planets and other bodies to orbit around it holding together the solar system.</li> <li>• Analyze and interpret data to determine scale properties of objects in the solar system</li> <li>• Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system</li> </ul>	<p>Major Resource: FOSS : Planetary Science</p>
<p>Project for Unit 3</p>	<p>Solar City</p>

<p><b>Unit Plan 4 – March _ April</b>  <b>Structure, Function, and Information Processing</b>  <b>SLO</b></p> <ul style="list-style-type: none"> <li>• Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells</li> <li>• Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</li> <li>• Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</li> <li>• Develop a model to explain how senses change energy coming from the environment (light, sound waves, chemicals in gases or food, heat or touch/pressure) into electrical signals in the nerves that go into the brain and spinal cord..</li> <li>• Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.</li> </ul>	<p>Major resource:  FOSS : Diversity of Life.</p>
<p><b>Project /PBA</b></p>	

<p><b>Unit Plan 5 – May -June</b>  <b>Growth, Development and Reproduction of Organisms</b>  <b>SLO</b></p> <ul style="list-style-type: none"> <li>• Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively</li> <li>• Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</li> <li>• Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.</li> <li>• Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.</li> <li>• Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.</li> </ul>	<p>Major Resource  Pearson <b>Growth, Development and Reproduction of Organisms</b></p>
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<b>Project</b>	Yellow stone National Park - A CASE study
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