

## Module 1 Unit Plan

| <b>Course: 6th Science Unit Plan for Energy &amp; Human Impacts</b>  |   |   |  |              |
|--|---|---|--|--------------|
| Time (Month or Days): 8/30-10/1 (34 Days)  |   | Unit: Human Impacts & Energy  |  |              |
| Big ideas: Energy, Energy Transfer, Consequences of Human Activity   |   | <p>Essential questions: How can energy be transferred from one object or system to another?</p> <p>How have human activity of land, energy, and water resources impacted Earth's systems?</p> <p>What is the main source of energy?</p> <p>How do we know things are made up of energy?</p> <p>What are the different forms of energy and how do they travel?</p> <p>What current technologies are used to capture solar energy and what is the purpose of this process?</p> <p>What happens to the total amount of energy when energy transformations happen in a system?</p> <p>How do you determine the efficiency of a machine?</p> |  |              |
| <p><b>Common texts, process standards, or both:</b><br/>           Generation Genius, BrainPop, Flocabulary, KaHoot!, Blooket, Gimkit!, ReadWorks,<br/>           (Engineering Standards <b>6-ETS1-1, 6-ETS1-2, 6-ETS1-3-ETS1-4</b> will run throughout entire module)</p> |   | <p><b>Student learning targets:</b></p> <p>*TSW learn how to minimize or maximize thermal energy transfer. CFA 1</p> <p>*TSW learn the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.CFA 2</p> <p>*TSW learn that when the motion (kinetic) energy of an object changes, energy is transferred to or from the object.CFA 3</p> <p>*TSW learn to design a method for monitoring and minimizing human impact on the environmentCFA 4</p>   |  |              |
| Standards  | Vocabulary  | Prerequisite Skills   | Activities (Resources)   | Assessment   |
| <b>6-PS3-3 Apply scientific principles to design, construct, and test a device</b>   | Thermal<br>Heat<br>Energy<br>Transfer<br>Kinetic Energy<br>Potential Energy<br>Mass |   | Generation<br>Genius,<br>BrainPop,<br>Flocabulary,<br>KaHoot!, Blooket,<br>Gimkit!,<br>ReadWorks,<br>Better Lesson | <b>CFA 1</b> |

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| <p><b>that either minimizes or maximizes thermal energy transfer.*</b></p>   | <p>Radiation<br/>Convection<br/>Conduction<br/>Insulator<br/>Conductor<br/>Change<br/>Temperature</p> |  | <p>Mystery Science</p> |              |
| <p><b>6-PS3-4 Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.</b></p> |   |  |                        | <p>CFA2</p>  |
| <p><b>6-PS3-5 Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.</b></p>   |   |  |                        |              |
| <p><b>6-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact</b></p>   |   |  |                        | <p>CFA 4</p> |

|  |  |  |  |  |
|--|--|--|--|--|
| <p><b>on the environment.*</b></p>   |  |  |  |  |
| <p><b>6-ESS3-4<br/>Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.</b></p> |  |  |  |  |

Instructional Cycle Dates

Sept-17 - 31 \*TSW learn that when the motion (kinetic) energy of an object changes, energy is transferred to or from the object.

Experiment : Rubberband experiment

Sept.15-28 TSW learn the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.

Experiment Bouncing a basketball

Sept. 15 -28 - \*TSW learn how to minimize or maximize thermal energy transfer. -

Experiment: Insulating a a jar with different materials

Sept 29 - 17 \*TSW learn to design a method for monitoring and minimizing human impact on the environment

Experiment: Calculate daily water use.