

**6<sup>th</sup> Grade Enhanced Science Unit Synopsis (SAMPLE)**

UNIT TITLE	BASE STANDARD(s) COVERED	EXTENSION	ACTIVITIES
Exploring Energy through Rube Goldberg	-6.1 E) A method is devised to test the validity of predictions and inferences -6.2 A) Potential and Kinetic Energy -6.2 E) Energy Transformations	*Expanding skills/knowledge of different forms of energy and the ways that simple machines convert energy from one form to another *Demonstrating through simple machines that with minimal amounts of work put in, the force applied to objects is greater *Using demonstrations/activities to show that when multiple simple machines are placed together, a relatively simple task can be completed	*Exploratory - 6 station simple machines activity *Cartoon drawing/miniature 4 step Rube Goldberg machine building- get the ball into the cup *10-16 step Rube Goldberg machine- make the buzzer BUZZ.

<p>Attack of the Invasive Species!</p>	<p>-6.7a) the health of ecosystems and the abiotic factors of a watershed  -6.7f) major conservation, health, and safety issues associated with watersheds  -6.9c) the mitigation of land-use and environmental hazards through preventive measures  -6.9d) cost/benefit tradeoffs in conservation policies</p>	<p>*Introducing the skills for identifying and eradicating an ecosystem of non-native species  *Identifying methods of preventing the introduction of invasive species to an ecosystem  *Using media to get out the message of the dangers of invasive species-storyboards, slogans, and public service announcements  *Possible extension could include an after school club to begin ridding Benton and the nature trail of identified invasive plant species</p>	<p>*Identify Vocabulary for Invasive Species  *<b>Guided Tour</b> of Benton property to learn to properly identify and remove invasive species from the grounds (led by Master Gardners of PWC)  *<b>Generate a Flow Chart</b>-map out invasive species in the U.S., focus on Virginia (follow the path for how the species got to the United States and to Virginia)  *<b>Construct a storyboard</b> on ways invasive species spread  *<b>Create a press release</b> on ways invasive species spread*<b>Design a “Call to Action” slogan and Public Service Announcement</b>, (video, rap, rhyme) Record and Present using Sway or Power Point Video (or other approved app)  <b>(Flow Chart-&gt;Storyboard-&gt;Press Release-&gt;PSA presentation)</b></p>
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<p>The Albedo Effect: Building a Smarter Future</p>	<p>-6.1.a) Observations are made involving fine discrimination between similar objects and organisms.  -6.1.h) Data are analyzed through graphical representations.  -6.1.i) Models and simulations are designed and used to illustrate/explain phenomena and systems.  -6.3.a) Earth's energy budget  -6.3.b) The role of radiation and convection in the distribution of energy.  -6.3.e) The role of thermal energy in weather-related phenomena.  -6.6.b) Pressure, temperature, and humidity  -6.6d) Natural and human-caused changes to the atmosphere and the importance of protecting and maintaining air quality.  -6.9.d) Cost/benefit tradeoffs in conservation policies.</p>	<p>*Gaining a better understanding of how and why materials absorb and reflect heat.  *Recording data from the school grounds to see what areas collect the most heat.  *Developing strategies to reduce heat collection in areas that people will inhabit.  *The importance of energy conservation and better building practices to benefit the air quality of populated areas.</p>	<p><b>*Real world data collection:</b>  Students will be planning areas to record temperature measurements using a thermometer and light meter based on the school map and building materials.  <b>*Engineering design:</b> Students will record temperatures on a roofing shingle exposed to a heat lamp. They will then be tasked to make a scale model of a playground using a variety of building materials to prevent heat collection.  <b>*Digital Graphs:</b> Students will be responsible for creating digital graphs using the data they collected in two of the activities in Excel.</p>
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