

**Big Idea: Solar Energy
Quarter**

1st

Smart Tech	Grade: 7		Time Frame: 9 weeks September 1- November 6th		
<i>Benchmarks</i>	<i>Content/ Skills</i>	<i>Key Terms</i>	<i>Assessment</i>	<i>College and career Readiness Standards</i>	<i>CCCS</i>
<p><u>Seventh Grade:</u></p> <ul style="list-style-type: none"> Comprehensive overview of solar power as a form of energy Understand the importance of angle when implementing solar panels <ul style="list-style-type: none"> What are renewable and nonrenewable resources and how can humans use them? What kind of energy does the Sun provide and how can this energy be used as a renewable resource? 	<p><u>Seventh Grade:</u></p> <ul style="list-style-type: none"> Investigation of Solar Energy How solar panels work Energy sources to run motors can be energy from the sun (solar) or energy stored in batteries (chemical). <p><u>Activities:</u></p> <p>http://www.eschooltoday.com/energy/renewable-energy/solar-energy.html</p> <p>http://www.nrel.gov/education/pdfs/educational_resources/high_school/solar_projects_hs.pdf</p> <p>Summary: The first three activities contained in the packet focus on the practical uses of solar energy. The activities deal with the heating of solids, liquids, and gases. The final activity investigates the transformation of light to electrical energy. And how different wavelengths and intensity can effect</p>	<p><u>Seventh Grade:</u></p> <p>Energy Heat Light Photosynthesis Strength Solar Power Evaporation Condensation; Atmosphere Conduction Convection Radiation Photovoltaic cells Thermal power</p>	<p>Quizzes Classwork Projects Classroom Observations</p>		

	the transformation to electricity. The packet also contains a glossary.				
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Big Idea: Wind Energy

2nd Quarter

Smart Tech	Grades: 7		Time Frame: 9 weeks November 9th- January 22nd		
<i>Essential Questions</i>	<i>Content/ Skills</i>	<i>Key Terms</i>	<i>Assessment</i>	<i>College and career Readiness Standards</i>	<i>CCCS</i>
<p><u>Seventh Grade:</u></p> <ul style="list-style-type: none"> • How Do We Use the Wind? • How Do Geography and Community Influence Wind Power Projects? • How Does Wind Inspire Creativity and Design? • How can wind energy be harnessed as an alternative source of energy? 	<p><u>Seventh Grade:</u></p> <ul style="list-style-type: none"> • Challenge: Which Turbine Design Is Better for the Job? • Challenge: How Can We Use Wind Power to Produce Electricity? • Investigation: How Do Motors and Generators Work? • Exploration: Where and Why Does the Wind Blow? • Exploration: Where Are the Wind Turbines? • Exploration: What Are Some Facts About Wind Farms? • Exploration: How Do Schools Use Wind Power? • Exploration: How Does the Wind Move Through Art and Literature? • What Innovative Design Can You Create? <p>Activity</p> <p>http://lessonplanspage.com/sciencemathconstructingbasicpvcwindturbineblades612-htm-2/</p>	<p><u>Seventh Grade:</u></p> <p>Wind Energy Motor Potential energy Cyclone Anemometer Rotational Symmetry Turbine Rudder Rotor Mechanical Energy</p>	<p>Quizzes Classwork Projects Classroom Observations</p>		

	- Construct a wind turbine for school				
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Big Idea: Hydroelectric Energy

3rd Quarter

Smart Tech	Grade: 7		Time Frame: 9 weeks January 25 th - April 8th	
<i>Essential Questions</i>	<i>Content/ Skills</i>	<i>Key Terms</i>	<i>Assessment</i>	<i>CCCS</i>
<p>What is the Water Cycle?</p> <p>How does water moves from state to state in the water cycle?</p> <p>What do you encounter in your everyday life that requires energy?</p> <p>What is Alternative Energy and why was it developed?</p> <p>What are the benefits of Hydroelectricity?</p> <p>What are the negative impacts of Hydroelectricity?</p>	<p><u>Seventh Grade:</u></p> <ol style="list-style-type: none"> Introduction: The Water Cycle. <ul style="list-style-type: none"> http://studyjams.scholastic.com/studyjams/jams/science/ecosystems/water-cycle.htm Watch the water cycle song, and then create their own song about the water cycle. They will share their songs with the class. Hydroelectric Energy <ul style="list-style-type: none"> Google search to find 5 examples/ideas of different energy sources Hydroelectric Advertisement <ul style="list-style-type: none"> Comic life poster to share information to clarify opinions about hydroelectric energy http://www.youtue.com/watch?v=NWwMa_kjcBk <ul style="list-style-type: none"> Explain the benefits and negative aspects of hydroelectricity http://www.youtue.com/user/BPplc?v=BqlsITCkOU 	<p>evaporation</p> <p>precipitation</p> <p>transpiration</p> <p>condensation</p> <p>vapor</p> <p>groundwater</p> <p>run-off</p> <p>infiltration</p>	<p>Quizzes</p> <p>Classwork</p> <p>Projects</p> <p>Classroom</p> <p>Observations</p>	

	<ul style="list-style-type: none">• Discuss different types of alternative energy sources in further detail because of their differing positive and negative outcomes			
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Big Idea: Conservation/Recycling			4th Quarter	
Smart Tech	Grade: 7		Time Frame: 9 weeks April 11- June 17	
Essential Questions	Content/ Skills	Key Terms	Assessment	CCCS
<p>What is conservation?</p> <p>How can we practice conservation in our community?</p> <p>How can we implement the 3 R's at our school?</p> <p>How can we do more for our state?</p> <p>How can we recycle everyday?</p>	<p>Conservation</p> <ol style="list-style-type: none"> https://www.brainpop.com/science/energy/conservingenergy/ <ul style="list-style-type: none"> Brainpop Activity: Write a letter to the town mayor about the importance of conserving energy in our town http://www.rainforest-alliance.org/ <ul style="list-style-type: none"> Conserving the rain forest – What can we do to help certain parts of the Earth <p>Recycling</p> <ol style="list-style-type: none"> http://www.discoveryeducation.com <ul style="list-style-type: none"> Discarded items made of biodegradable materials take up less room in a landfill and are therefore preferable to items made of materials that take many years to break down. http://learningtogive.org <ul style="list-style-type: none"> The importance of helping Mother Nature- Pick up Litter – How can we clean up our town 	<p>Reduce</p> <p>Reuse</p> <p>Recycle</p> <p>Landfills</p> <p>Natural resources</p> <p>Renewable resources</p> <p>Fumes</p> <p>Toxic</p> <p>Environment</p> <p>Compost</p> <p>Ecological footprint</p> <p>Greenhouse</p> <p>Sustainability</p> <p>Conservation</p>	<p>Quizzes</p> <p>Classwork</p> <p>Projects</p> <p>Classroom</p> <p>Observations</p>	

