



Physics of the Universe IS 3 - Energy Conversion

How can we use our knowledge of energy conversion to understand California Wildfires and Texas Snowstorms?



PhysU Critical Concepts 2022

CC-P.5 Energy Use and Management	CC-P.6 Energy at the Particle Level	SEP 1 Asking Questions and Defining Problems SEP 2 Developing and Using Models	SEP 5 Using Mathematics and Computational Thinking SEP 6 Constructing Explanations and Designing Solutions	SEP 7 Engaging in Argument from Evidence SEP 8 Obtaining, Evaluating and Communicating Information
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Students track energy transfer and conversion through different stages of power plants. They evaluate different power plant technologies, investigate electromagnetism to create models of how generators work and obtain and communicate information about how solar powered systems operate. Students design and test their own energy conversion devices. Students will understand how energy changes forms from research on energy production around the world. Students will be able to describe the basic components of an electrical generator and explain how the kinetic energy of wind, water and steam is converted into electrical power.

Energy Conversion IS #3

Week 8	Introduction to Instructional Segment: Exploring Energy
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	Lesson 1   plan slides Description - Energy Basics - Exploring Energy Stations	Lesson 2   plan slides Description Bobsled Challenge - Efficiency	Lesson 3   plan slides Description - Simple Machines (pulleys, levers, etc) - Power (Watts)	Lesson 4   plan slides Description - Compare and Contrast Power Plants - pHET Energy Transformations	Flex 1-4  Flex Day Organizer
Week 9	Exploring Energy		Energy in the Earth System- IST: Anchor Phenomenon		
	Lesson 5   plan slides Description Magnetism	Lesson 6   plan slides Description Motors vs generators	Lesson 7   plan slides Description IST: Anchor Phenomenon - Introduce Exhibition	Lesson 8   plan slides Description Making explicit connections between human activity and air pollution- Research unhealthy air	Flex 5-8  Flex Day Organizer
Week 10					
	Lesson 9   plan slides Description Is Our Local Air Quality Problem Solvable	Lesson 10   plan slides Description Exploring the Texas Snowstorms of 2021 and Californias's Wildfires	Lesson 11   plan slides Description - Climate Change - Catastrophic Events - Greenhouse Effect	Lesson 12   plan slides Description - Compare Local Energy with State & National Flow Charts - kW hours	Flex 9-12  Flex Day Organizer
Week 11			Summative Task & Rubric		
	Lesson 13   plan slides Description Pros and Cons of Power Sources - research	Lesson 14   plan slides Description Pros and Cons of Power Sources - research and socratic seminar	Lesson 15   plan slides Description Exhibition: Chain of Evidence	 Summative Task & Rubric Description Students finalize Exhibition	 Summative Task & Rubric Description Exhibition
☒ P:IS3 Materials List					

