

Unit Learning Targets

Department: Science

Course: Physics/Physics with Technology

Instructor(s): Jessica Rodriguez

Standard IV: Students will understand transfer and conservation of energy. (Unit 5: Energy)

Student-Friendly Learning Target Statements

Know	Knowledge Targets <i>"What I need to know"</i>	<p>I know that work is done when a force is exerted on an object over a distance.</p> <p>I know that work is a transfer of energy to an object, and that energy is the ability to do work.</p> <p>I know that energy is not created or destroyed (the law of conservation of energy) but that it is changed from one form to another.</p> <p>I know that potential energy is stored in an object lifted above the ground or in a stretched spring (gravitational potential energy and elastic potential energy).</p> <p>I know that objects in motion have kinetic energy.</p> <p>I know that energy can be transferred out of a system through friction, causing heat energy to be transferred.</p> <p>I know that heat energy is often not available to do work on a system and is therefore called dissipated energy.</p>			
	Do	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="text-align: center; vertical-align: middle;">Reasoning Targets <i>"What I can do with what I know."</i></td> <td> <p>I can describe a closed system in terms of energy.</p> <p>I can determine where a system gets its energy from, what the energy does, and where the energy goes.</p> <p>I can describe energy transformations and determine what type of energy is present in a system.</p> </td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">Skill Targets <i>"What I can demonstrate."</i></td> <td> <p>I can calculate the total amount of energy in a system.</p> <p>I can calculate the kinetic energy, gravitational potential energy, elastic potential energy, and dissipated energy in an object.</p> <p>I can use a force vs. distance graph to measure the amount of energy stored in an object.</p> </td> </tr> </tbody> </table>	Reasoning Targets <i>"What I can do with what I know."</i>	<p>I can describe a closed system in terms of energy.</p> <p>I can determine where a system gets its energy from, what the energy does, and where the energy goes.</p> <p>I can describe energy transformations and determine what type of energy is present in a system.</p>	Skill Targets <i>"What I can demonstrate."</i>
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	<p>Product Targets</p> <p><i>"What I can make to show my learning."</i></p>	<p>I can draw a force vs. distance graphs and calculate the area underneath to determine the energy stored.</p> <p>I can draw pie charts and bar graphs to show energy transformations and conservation.</p> <p>I can draw energy flow diagrams to show where a system gets its energy from, what it does, and where it goes.</p>
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Essential Learning: The critical knowledge, skills, and dispositions each student must acquire as a result of this unit of instruction.

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