

Science
Unit 1: Energy

Essential Understandings	<ul style="list-style-type: none"> ▪ Energy is all around us. ▪ Energy can move and change. ▪ There are environmental and ethical consequences of science and technology.
Essential Questions	<ul style="list-style-type: none"> ▪ What is energy? ▪ What is the difference between potential and kinetic energy? ▪ What are some forms of energy? ▪ What are some sources of energy? ▪ How can energy be produced? ▪ What is the main source of the earth's heat and light energy? ▪ What are some environmental consequences of science and technology?
Essential Knowledge	<ul style="list-style-type: none"> ▪ Energy is the ability to do work. ▪ The two types of energy are kinetic energy (energy of motion) and potential energy (stored energy). ▪ The forms of energy include: (MRS. CHEN) mechanical, radiant, sound, chemical, heat, electrical, and nuclear. ▪ Some sources of energy include fossil fuels, wind, water, and solar. ▪ Energy can be produced by changing one form of energy to another form. For example, mechanical energy (water) changes to electrical (electricity). ▪ The sun produces most of the earth's heat and light energy. ▪ Choices influence the environment. ▪ There are renewable and non-renewable resources. ▪ Science and technology can help people make safe and healthy decisions.
Vocabulary	<ul style="list-style-type: none"> ▪ <u>Terms:</u> <ul style="list-style-type: none"> ○ energy, kinetic energy, potential energy, consequence, environmental, choice, renewable, non-renewable, resources, ethical ▪ <u>Forms of Energy:</u> <ul style="list-style-type: none"> ○ mechanical, radiant, sound, chemical, heat, electrical, nuclear
Essential Skills	<ul style="list-style-type: none"> ▪ Identify some forms of energy. ▪ Explain ways energy can be produced. ▪ Identify choices that have had positive or negative effects on the environment. ▪ Identify some renewable and non-renewable resources. ▪ Explain the importance of conserving energy and natural resources.

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<p align="center">Related Maine Learning Results</p>	<p><u>Science</u> C. The Scientific and Technological Enterprise C3.Science, Technology, and Society Students identify and describe the influences of science and technology on people and the environment. a. Explain how scientific and technological information can help people make safe and healthy decisions. b. Give examples of change in the environment caused by natural or man-made influences. c. Explain that natural resources are limited, and that reusing, recycling, and reducing materials and using renewable resources is important. D. The Physical Setting D2.Earth Students describe the properties of Earth’s surface materials, the processes that change them, and cycles that affect the Earth. e. Recognize that the sun is the source of Earth’s surface heat and light energy. D4.Force and Motion a. Predict the effect of a given force on the motion of an object.</p>
<p align="center">Sample Lessons And Activities</p>	<ul style="list-style-type: none"> ▪ Make a forms of energy poster. ▪ Make a solar oven with aluminum foil and a box. ▪ Make a pinwheel. ▪ Pour water over a wheel. ▪ Describe ways to conserve energy at school and home.
<p align="center">Sample Classroom Assessment Methods</p>	<ul style="list-style-type: none"> ▪ Compare and contrast renewable and non-renewable resources. ▪ Choose a form of energy and illustrate how it could be changed to another form. ▪ Give examples of potential and kinetic energy. ▪ Make a diagram showing how the sun produced a form of energy.

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<p>Sample Resources</p>	<ul style="list-style-type: none">▪ <u>Publications:</u><ul style="list-style-type: none">○ <u>Bioenergy</u> - Graham Houghton○ <u>Energy</u> - Eyewitness Books, Dorling Kindersley Publications○ <u>Energy</u> - Martin Gutnik○ <u>Energy</u> - Alvin Silverstein○ <u>Energy All Around</u> - Tillie Pine○ <u>Exploring With Solar Energy</u> - Thomas Metos○ <u>Geothermal Energy</u> - Graham Rickard○ <u>Nuclear Power</u> - Nigel Hawkes○ <u>Solar Energy</u> - Graham Rickard○ <u>Wind Power</u> - Mike Cross▪ <u>Videos:</u><ul style="list-style-type: none">○ <u>Energy For Children: All About The Conservation of Energy</u> - Schlessinger Science Library○ <u>Powerful Forces All Pumped Up</u> - Bill Nye○ <u>Power Up</u> - Rainbow Educational○ <u>What Energy Means</u> - National Geographic▪ <u>Other Teacher Resources:</u><ul style="list-style-type: none">○ <u>Energy, Light & Sound</u>, - Educ. Center Publications
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