

Teaching a lesson using solar energy concepts?

Here are Massachusetts science standards that could fit your lesson:

Grades K-2

LABEL	STANDARD
Earth and Space Science 4	Recognize that the sun supplies heat and light to the earth and is necessary for life.
Physical Sciences 5	Give examples of how energy can be transferred from one form to another.

Grades 3-5

LABEL	STANDARD
Earth and Space Science 6	Explain how air temperature, moisture, wind speed and direction, and precipitation make up the weather in a particular place and time.
Physical Sciences 3	Identify the basic forms of energy (light, sound, heat, electrical, and magnetic). Recognize that energy is the ability to cause motion or create change.
Physical Sciences 5	Give examples of how energy can be transferred from one form to another.
Physical Sciences 6	Recognize that electricity in circuits requires a complete loop through which an electrical current can pass, and that electricity can produce light, heat, and sound.
Physical Sciences 7	Identify and classify objects and materials that conduct electricity and objects and materials that are insulators of electricity.

Grades 6-8

LABEL	STANDARD
Earth and Space Science 4	Explain the relationship among the energy provided by the sun, the global patterns of atmospheric movement, and the temperature differences among water, land, and atmosphere.
Physical Sciences 13	Differentiate between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa.
Physical Sciences 14	Recognize that heat is a form of energy and that temperature change results from adding or taking away heat from a system.
Physical Sciences 16	Give examples of how heat moves in predictable ways, moving from warmer objects to cooler ones until they reach equilibrium.

Grades 9-12

LABEL	STANDARD
Earth and Space Science 1.1	Identify Earth's principal sources of internal and external energy, such as radioactive decay, gravity, and solar energy
Earth and Space Science 1.2	Describe the characteristics of electromagnetic radiation and give examples of its impact on life and Earth's systems.
Earth and Space Science 1.4	Provide examples of how the unequal heating of Earth and the Coriolis effect influence global circulation patterns, and show how they impact Massachusetts weather and climate (e.g., global winds, convection cells, land/sea breezes, mountain/valley breezes).
Chemistry 6.4	Describe the law of conservation of energy. Explain the difference between an endothermic process and an exothermic process.
Chemistry 6.5	Recognize that there is a natural tendency for systems to move in a direction of disorder or randomness (entropy).
Physics 2.1	Interpret and provide examples that illustrate the law of conservation of energy.
Physics 2.2	Interpret and provide examples of how energy can be converted from gravitational potential energy to kinetic energy and vice versa.
Physics 2.3	Describe both qualitatively and quantitatively how work can be expressed as a change in mechanical energy.
Physics 3.1	Explain how heat energy is transferred by convection, conduction, and radiation.
Physics 5.1	Recognize that an electric charge tends to be static on insulators and can move on and in conductors. Explain that energy can produce a separation of charges.
Physics 5.6	Explain how electric current is a flow of charge caused by a potential difference (voltage), and how power is equal to current multiplied by voltage.