

Chapter 9 Lesson Plan

Energy Sources & Conversions

Chapter Resources		
Textbook Activity	Teacher CD	Online Learning Center
Convert Energy Design a device that will utilize several energy conversions.	Lesson Plan Flash® Presentation <i>ExamView®</i> Chapter Test	Chapter Activities Chapter Quizzes

FOCUS

This chapter provides an overall look at energy resources—exhaustible, renewable, and inexhaustible.

Objectives

- Identify and discuss exhaustible, renewable, and inexhaustible energy sources.
- Describe the methods of conversion for several energy sources.
- Discuss the negative and positive effects of several energy sources.

Tying to Previous Knowledge

Why do we plug in some appliance, or put fuel in others, or place wood in a fire? Through discussion, draw out the observations that virtually every system requires energy.

TEACH

1. **Analysis.** Instead of exhaustible, renewable, and inexhaustible, try analyzing energy resources from the aspect of origin—which ones come from the sky, the earth, or water?
2. **Cause and effect.** Light a match, drop it in a glass beaker or on a nonflammable dish, and watch with the class as it burns out. Discuss why the match burned out. Can we make it burn again? Is this particular supply of energy exhausted?
3. **Technology assessment.** Have teams of students decide among themselves what is of primary importance in an energy source or supply. Is it ease of access or use, cost, or lack of polluting byproducts? (You may very well have a consensus that there is no one factor that always overrides the others.)
4. **Effect of politics on technology.** Automobiles in the United States ran an average 15 miles per gallon on an annual basis (in all passenger cars) from about 1925 to 1973. Ask the class if they can figure out the reason for that. (Yes, the oil embargo prompted concern for conservation and an increased demand for more economical cars.)

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Energy Sources & Conversions (continued)

ASSESS

Have students complete Chapter Test 9. Chapter tests are found in the *ExamView*® Assessment Suite on this Teacher Resource CD-ROM.

Reteach

1. Many of our energy producing systems go through the process of heating water. Why is that so? (It is convenient to turn a turbine, and water is plentiful, inexpensive, and non-polluting.)
2. It seems that inexhaustible energy resources (water, sun, wind) are also essentially free. That being the case, why is most of our energy not coming from these sources?

Enrich

1. Ask the class why energy cannot be taken from the sunlight in outer space and be simply beamed back to Earth. Has anybody proposed such a system? Is it practical to attempt?
2. Is it reasonable to drill deep into the earth to access the heat stored there? If we did that, would the earth cool off? If the earth cooled off, would we on the surface be in trouble?

REFLECT

People have searched for and needed energy since they first roamed the Earth. How has the search evolved over the millennia? Can people no longer thrive with just animal and human power?