Name _____ Date _____ Class _____

INTEGRATING ENVIRONMENTAL SCIENCE

Understanding the Conservation of Energy

You have probably heard about the need to discover alternate sources of energy. The fossil fuels we use to run our cars and produce most of our electricity will eventually be consumed. Scientists are looking for new sources of energy that are cost-effective and not harmful to the environment.

The Law of Conservation of Energy

According to the law of conservation of energy, whenever a system undergoes a change, energy is neither destroyed nor created. If energy does not enter or exit a system, the total energy of that system stays the same, regardless of what changes may occur. When you consider the law of conservation of energy, you may wonder why we need to look for new energy sources at all. Why can't we just reuse the energy that we already have?

Energy Distribution

The answer to that question is in the way that energy is distributed. Energy takes different forms. Some of these forms are more usable than others. For example, most power plants burn natural gas, coal, or oil and convert the energy released as heat into electrical energy. With a stereo, some of the electrical energy is converted into sound waves. Then the energy is less useful. To use the sound waves, we would need a process to capture the waves and convert their energy to a usable form, such as electrical energy.

Your Turn to Think

1. What is the law of conservation of energy?
2. When people talk about new sources of energy, do they mean discovering new sources of energy or new ways to capture and convert energy? Explain.
3. Explain why the law of conservation of energy can mean that we do not have unlimited sources of energy.