Conversions Between Forms of Energy

What does water have to do with electricity? You may already know that the mechanical energy of moving water can be converted, or transformed, into electrical energy. A change from one form of energy to another is called an **energy conversion,** or an energy transformation. **Any form of energy can be converted into any other form.**

You encounter energy conversions frequently. A toaster, for example, converts electrical energy to thermal energy. In an electric motor, electrical energy is converted to mechanical energy that can be used to run a machine.

Your body converts the chemical energy in the food you eat to the mechanical energy you need to move your muscles. Chemical energy in food is also converted to the thermal energy your body uses to maintain its temperature. Chemical energy is even converted to the electrical energy your brain uses to think.

Often a series of energy conversions is needed to do a task. Strike a match, for example, and the mechanical energy used to move the match is converted to thermal energy. The thermal energy causes the match to release stored chemical energy, which is converted to thermal energy and to the radiant energy you see as light.

In a car engine another series of conversions occurs. Electrical energy produces a hot spark. The thermal energy of the spark releases chemical energy in the fuel. When the fuel burns, this chemical energy in turn becomes thermal energy. Thermal energy is converted to mechanical energy used to move the car, and to electrical energy that produces more sparks.

☑ *Checkpoint* *Give an example of an energy conversion.*