

Analyze Your Data

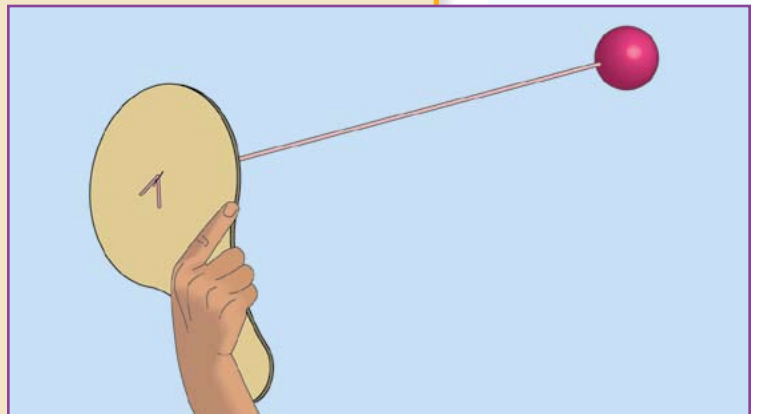
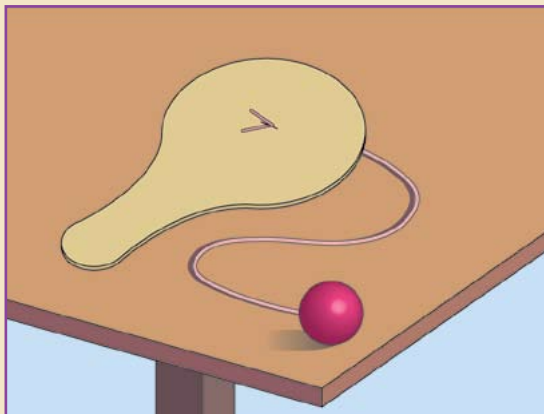
Share your list of changes with your group, and answer these questions. Be prepared to share your answers with the class.

- What changes did you identify?
- What type of energy was transformed to what other type in each change you saw?
- What energy transformations can you identify in the toaster? Read *Three Other Types of Energy* to help you understand some of the types of energy you have not seen before in this Unit.
- Which of these indicators show that energy is being transformed? Describe each energy transformation.
- How would you describe energy based on what you observed in this demonstration? Use your own words.

Three Other Types of Energy

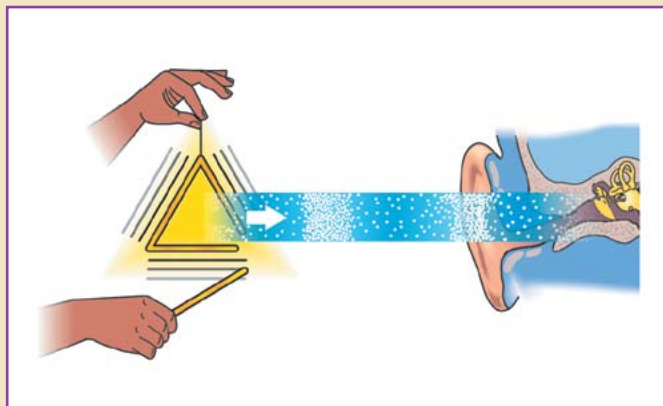
The toaster uses three types of energy that you have not explored yet in this Unit. One type is **elastic energy**. This is the type of energy stored in a rubber band or a spring. This type of energy can be transformed into kinetic energy. When a spring or rubber band is stretched and held motionless, it has elastic energy. Releasing the elastic energy transforms it into kinetic energy.

elastic energy:
the energy stored
in an object when
the shape of the
object is changed.



A paddleball uses elastic energy. Elastic energy is stored in the rubber band.

Another type of energy is **sound energy**. Sound energy, like light energy, moves in waves. Sound waves are *vibrations* that travel through matter. You detect sound waves when they strike your eardrum, causing it to vibrate. Your brain interprets the vibration of the eardrum as sound.



The strings in a harp and a triangle struck by a wand produce sound energy.

sound energy: vibrating air that travels as waves to your ears.

thermal energy: experienced as heat; the energy of motion of all the particles in an object.

A third type of energy is **thermal energy**. You know that thermal energy is present when you feel something warm or feel something get warmer. Thermal energy is energy associated with the motion of particles (atoms or molecules) in an object. An object that feels hot to the touch has faster-moving particles than an object that feels cold. The hotter object has more thermal energy. You will learn more about these types of energy later in this Unit.



When an electric burner is turned on, it produces thermal energy.