**KEY CONCEPT**

**Earthquakes release energy.**

**BEFORE, you learned**

- Most earthquakes occur along tectonic plate boundaries
- Different directions of stress cause normal, reverse, and strike-slip faults

**NOW, you will learn**

- How energy from an earthquake travels through Earth
- How an earthquake’s location is determined

**STANDARDS**

8–3.2 Explain how scientists use seismic waves—primary, secondary, and surface waves—and Earth’s magnetic fields to determine the internal structure of Earth.

8–3.3 Infer an earthquake’s epicenter from seismographic data.

8–3.8 Explain how earthquakes result from forces inside Earth.

**VOCABULARY**

- seismic wave p. 227
- focus p. 228
- epicenter p. 228
- seismograph p. 232

**EXPLORE Movement of Energy**

**How does energy travel?**

**PROCEDURE**

1. On a flat surface, hold one end of a spring toy while a partner holds the other end. Stretch the spring, then squeeze some coils together and release them.

2. Again, hold one end of the spring while your partner holds the other end. Shake your end of the spring back and forth.

**WHAT DO YOU THINK?**

- How did energy travel along the spring when you gathered and released some coils?
- How did energy travel along the spring when you shook one end back and forth?

**MATERIALS**

- spring toy

**Energy from earthquakes travels through Earth.**

When you throw a rock into a pond, waves ripple outward from the spot where the rock hits the water. The energy released by an earthquake travels in a similar way through Earth. Unlike the pond ripples, though, earthquake energy travels outward in all directions—up, down, and to the sides. The energy travels as **seismic waves** (SYZ-mihk) which are vibrations caused by earthquakes. Seismic waves from even small earthquakes can be recorded by sensitive instruments around the world.