What Is Sound?

Vocabulary

pitch  how high or low a sound is
sound  a kind of energy made by an object that vibrates
vibrate  to move quickly back and forth

Inquiry Focus

Observe  Students use their senses to learn about things around them.

Concepts and Skills

• Students know that vibrations create sounds.
• Students know that sounds vary in volume and pitch.
• Students know that the volume of a sound depends on how strongly the object is vibrating.
• Students observe the vibrations of an object that makes sound.
• Students compare types of sounds and classify sounds in terms of volume and pitch.

Planning

Materials

• *cymbals, large
• cymbals, small
• plastic container, large
• plastic cups
• tuning fork
• *water
• xylophone
*Not provided in kit

Student Resources

• 1.1 Vocabulary
• 1.2 Kinds of Sounds
• 1.3 Section 1 Assessment

In Advance

• For Investigate 1 (p. 4), borrow a pair of large cymbals from a music teacher, or bring in two large metal pan lids.
Science Background

Sound is a form of energy produced by vibrating objects. The vibrating objects produce sound waves that travel through matter. The properties of sound waves determine sound’s two main qualities, volume and pitch.

Volume refers to the loudness of a sound. Louder sounds have greater wave amplitude than softer sounds. (The amplitude of a wave refers to the distance the wave oscillates from its resting position.) Pitch refers to the highness or lowness of a sound. Higher-pitched sounds have greater wave frequency than lower-pitched sounds. (The frequency of a wave refers to the number of waves produced in a certain amount of time.)

Frequency is measured in hertz (Hz). One hertz is equal to one wave per second. The sound produced by the tuning fork in the kit has a frequency of 440 Hz. The human ear can hear sounds between 20 Hz and 20,000 Hz. Dogs and many other animals are able to hear sounds with higher frequencies.