LEVELED BOOK • M

Sound All Around

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What Makes Sound?

Crash, *boom*, *bam*, *bang*, *swoosh*, and *splash*—sounds are all around us.

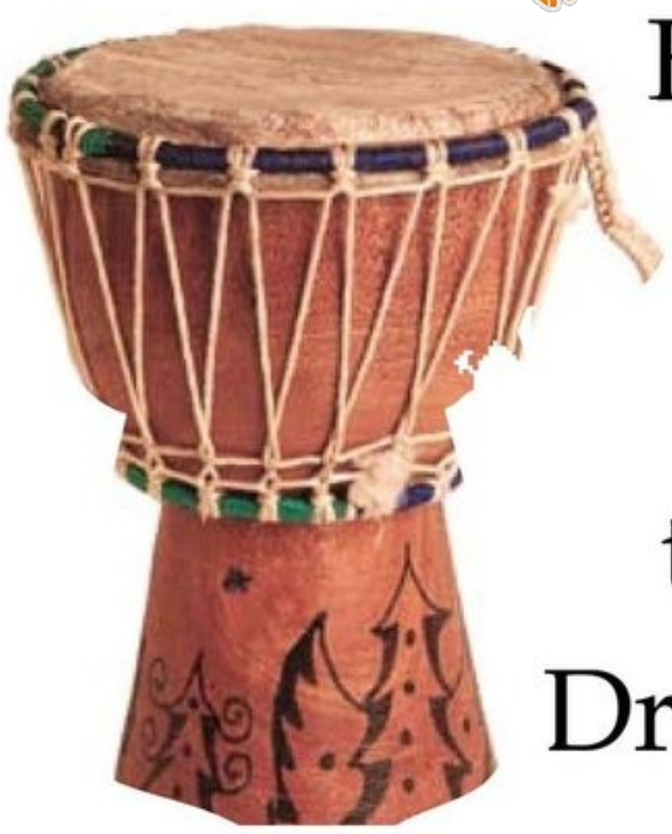
A girl makes sound with an ukulele.

Rain makes sound when it hits the ground.

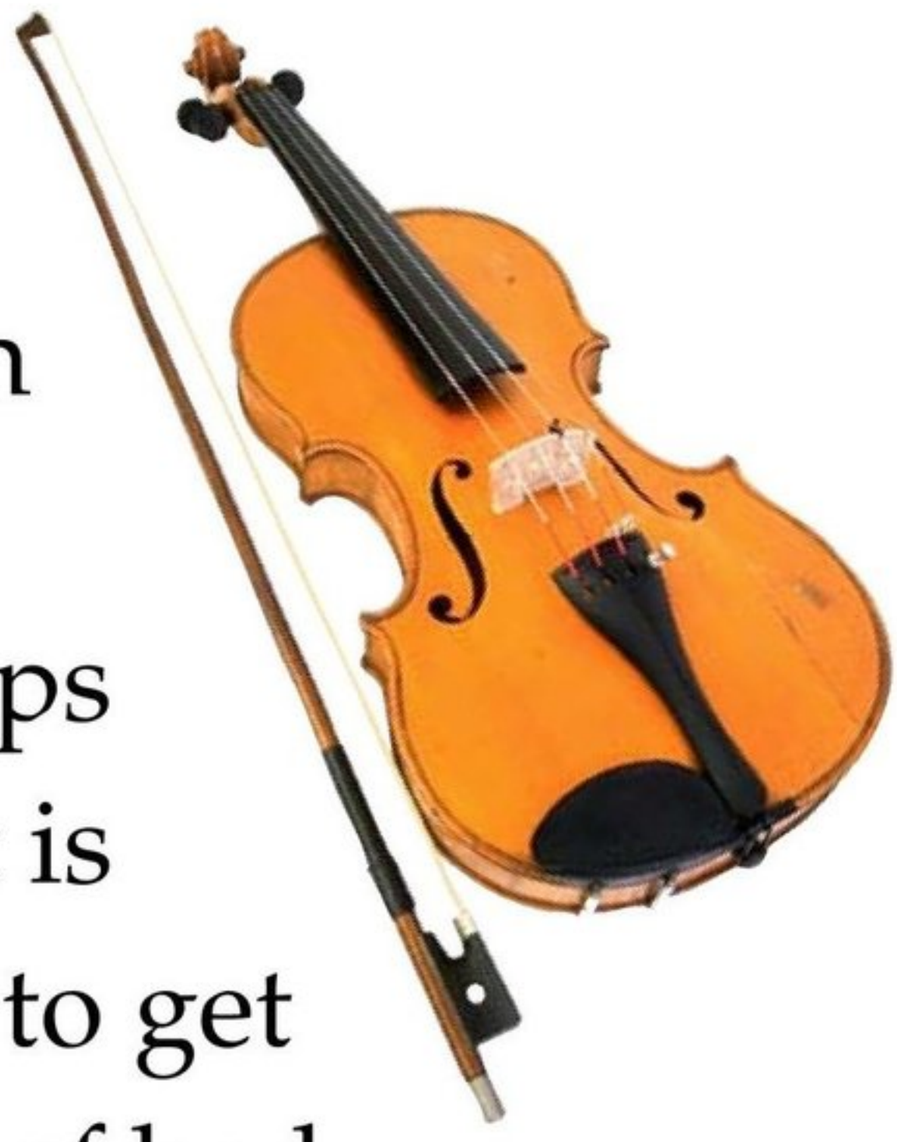
People, animals, and objects make sounds. Even the weather makes sound. Sounds can be loud or soft. They can be **pleasant** or unpleasant.

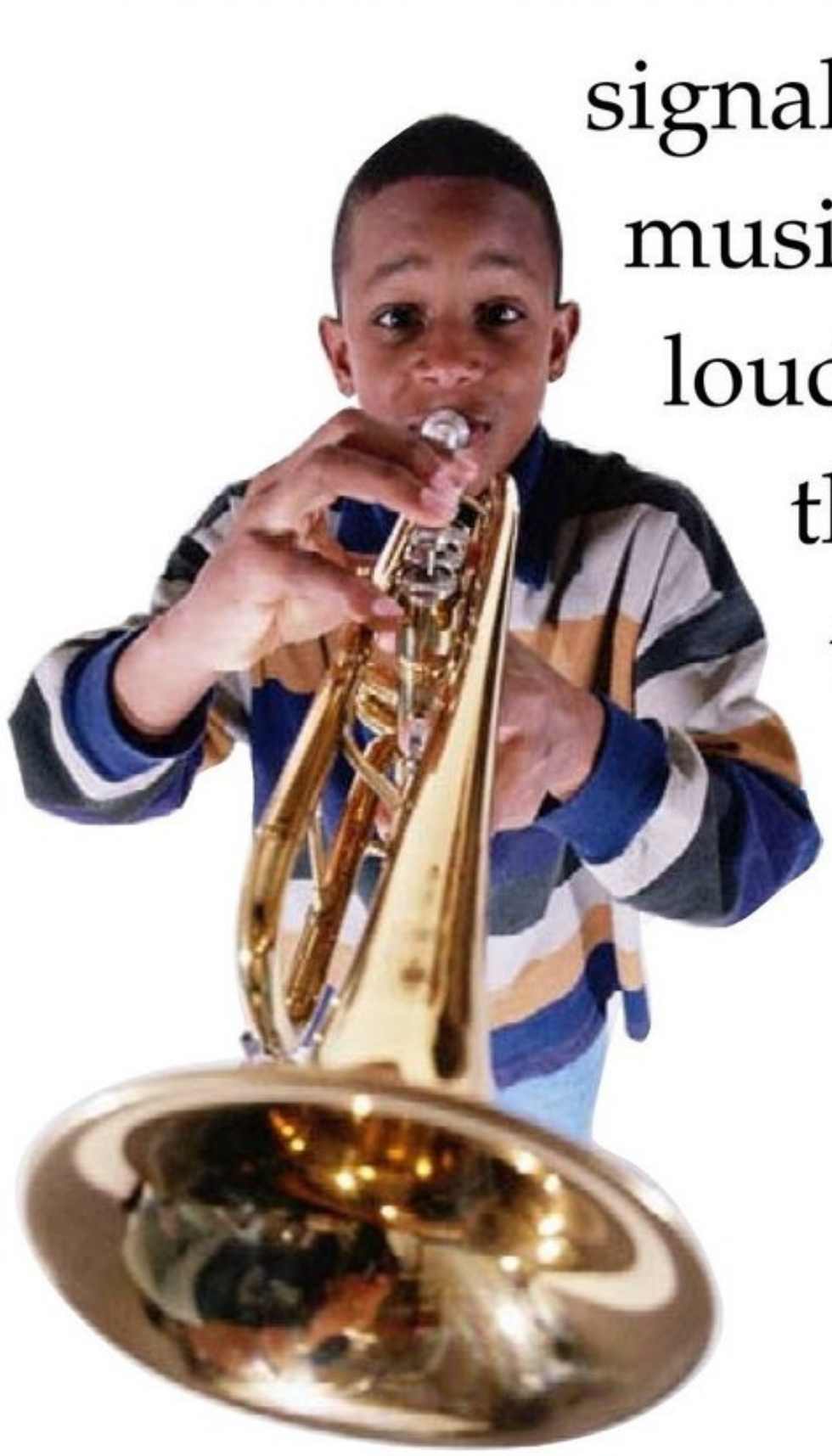
Animals use sound in many ways. Humans use sound to **communicate** their thoughts and feelings. Other animals use sound to communicate, too. They use sound to defend themselves, attract a mate, or signal a warning.

A prairie dog makes a noise to warn that danger is near.



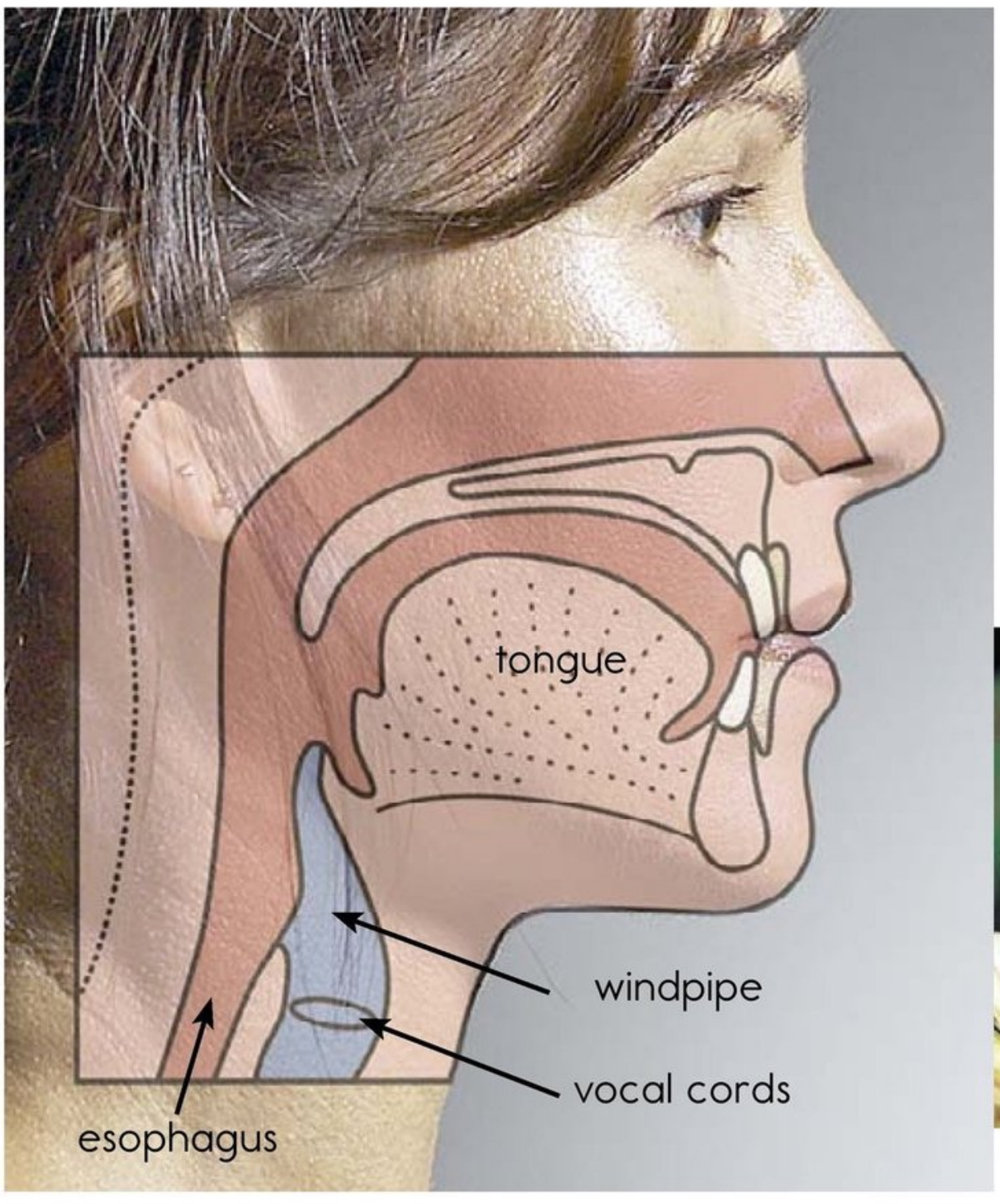
Humans have invented many things to make sounds. Drums, bagpipes, and stringed instruments make music. Horns, bells, and sirens sound warnings or call people to events. Alarm clocks signal with music or loud beeps that it is time to get out of bed.





What Is Sound?

Sound is made when an object **vibrates**, or moves back and forth very quickly. People make sound to talk when air vibrates **vocal cords** in their throats. Different vibrations in the vocal cords make different sounds.



Vocal cords in the windpipe vibrate to make sounds similar to the way a bee's wings vibrate to make sound.

Try This! Feel the Vibration

- Get two rubber bands, one thick and one thin.
- Stretch them over an open shoebox.
- **Pluck** each rubber band.
- Listen to the sounds they make.
- How are the sounds different? Why?

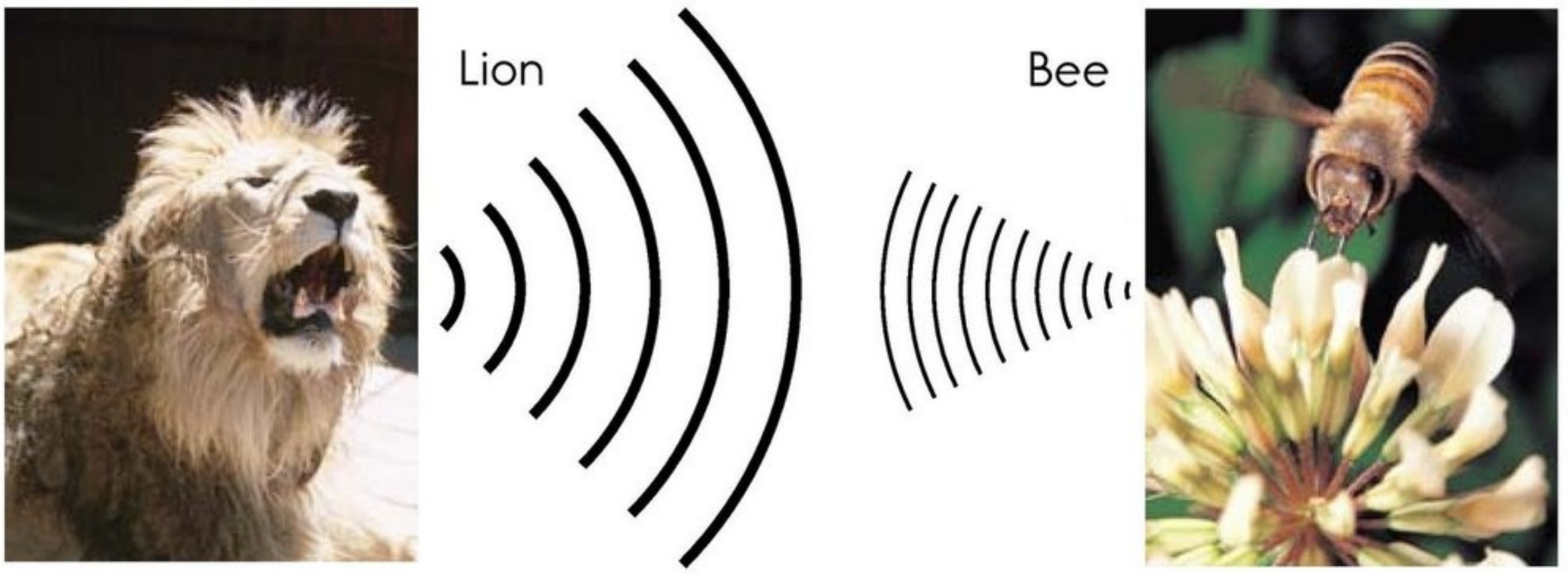
If there is no one around to hear the tree crash, will it make a sound?

A vibrating object makes the air around it move. This is how sound travels. It moves outward in all directions. For example, when a tree crashes to the ground, the air around it vibrates. When the vibrating air reaches your ear, you hear the sound of a crashing tree. The vibrating air is called **sound waves**. Sound waves also travel through solids and liquids.

Different Sounds

Not all sound is alike. Some sounds are loud. Others are quiet. The loudness of sound is called **volume**. The more air that vibrates, the louder the volume. For example, a lion's roar vibrates more air than a buzzing bee's wings.

Sound also can be high or low. This is called **pitch**. Pitch depends on how fast something vibrates. Sirens vibrate quickly and have a high pitch. Bass drums vibrate slowly and have a low pitch.



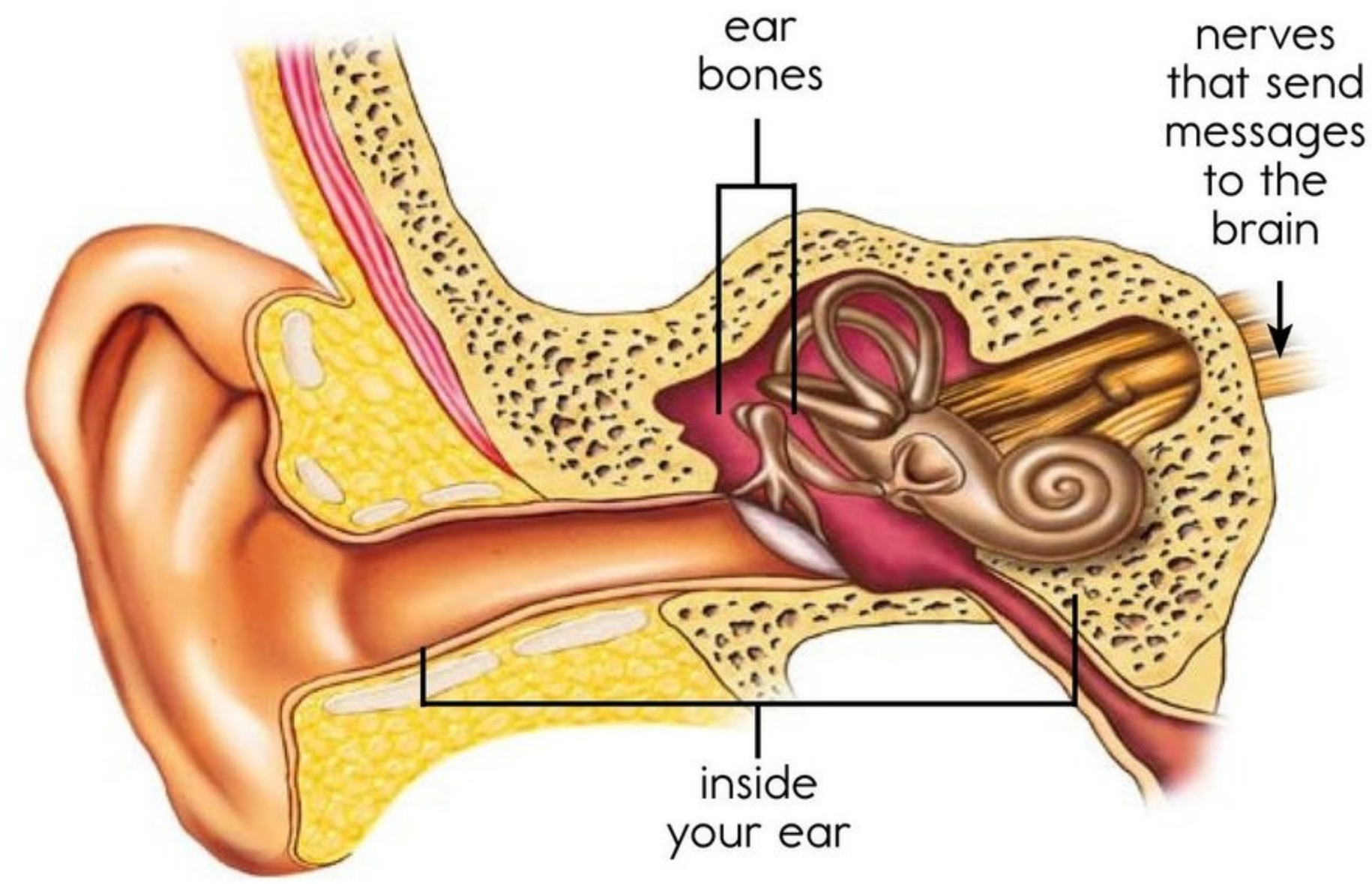
4x2−6=22−19=3+5+2=10+8+10÷2=14x2−3=25−5−5+2=17+3x2−20÷2−7=3+5+2=10+8+10÷2=14

Math Minute

It takes sound about five seconds to travel one mile.

How long would it take for a sound to travel 10 miles?

Hint: Use the mile markers to count by fives to find the answer.



Humans and other animals use their ears to hear.

Ears and Sound

The outside of your ear is shaped to collect sound waves. The sound waves move from outside the ear to inside the ear. Tiny bones inside vibrate when they are struck by sound waves. The vibrating bones send messages through nerves to your brain. Your brain then interprets the messages as noise, music, talking, or other sounds.

The inner parts of the ear are very **sensitive**. Very loud sounds can hurt your ears. Be careful around loud noises. Cover your ears with your hands, or wear coverings on your ears such as earphones or earplugs. Or simply move away from the loud sounds.

Protecting your ears from loud noises keeps them working well.

Conclusion

We are surrounded by sounds. Vibrations make loud, quiet, high, and low sounds. Our ears pick up these sounds, and our brain tells us what they are. Enjoy the many sounds of the world and be careful with your ears!

Glossary

communicate to make known (p. 6)

pitch highness or lowness of sound (p. 11)

pleasant nice, enjoyable, or satisfying (p. 5)

pluck to pull at and let go (p. 9)

sensitive easily damaged (p. 14)

sound waves waves made when something vibrates (p. 10)

vibrates moves back and forth rapidly (p. 8)

vocal cords membranes in the throat that produce sound when they are vibrated by breath (p. 8)

volume how loud a sound is (p. 11)

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