

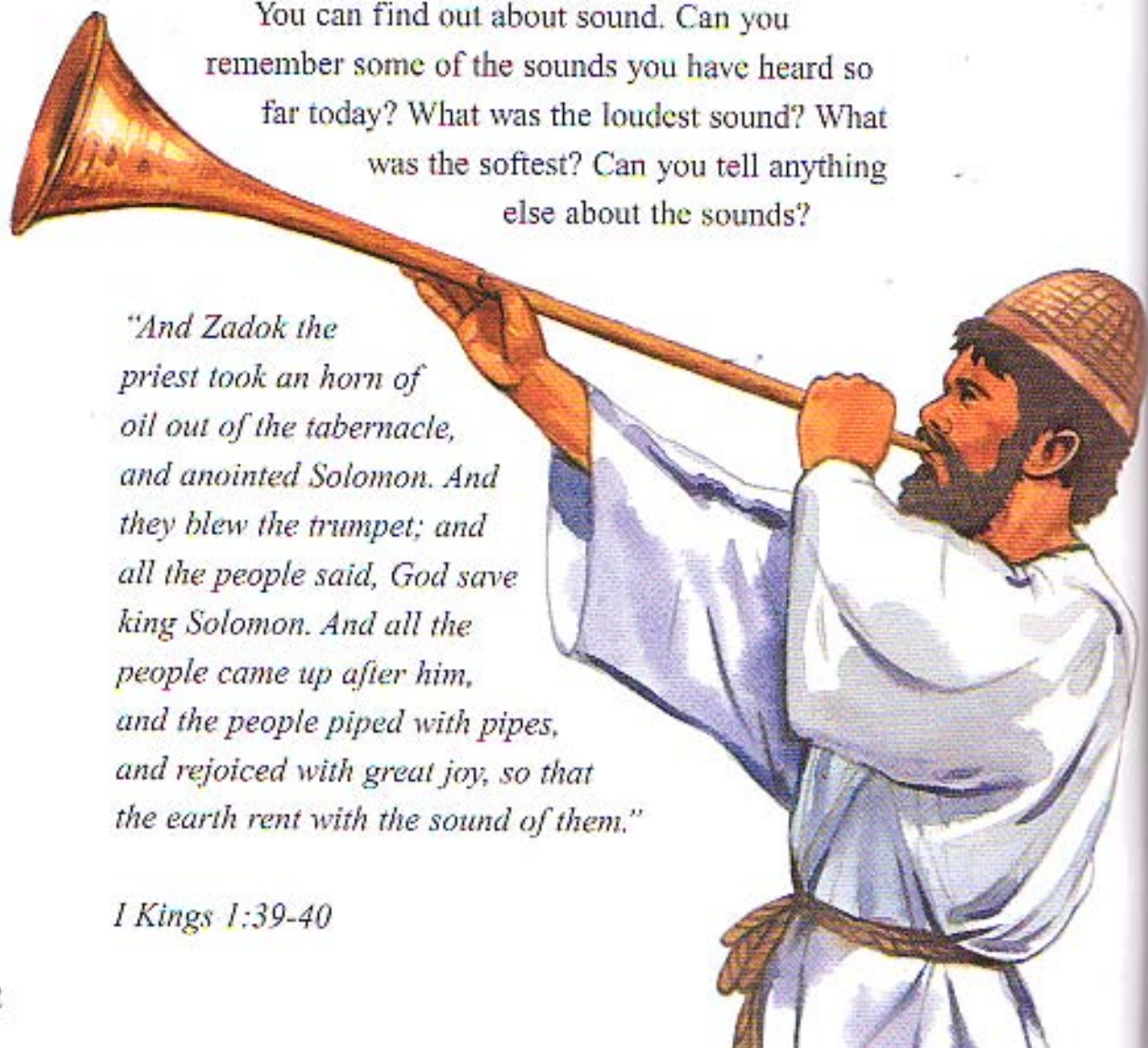
God created our world in six days. Men have gazed at it in wonder for thousands of years. Sometimes men write down what they see, or *observe*. They try to describe what God has made.

Scientists try to record what they learn about our world. They try to measure things, to tell how things look, to give things names. You can be a scientist if you observe and record what you see or hear. You can learn to measure, to describe, and to find out.

You can find out about sound. Can you remember some of the sounds you have heard so far today? What was the loudest sound? What was the softest? Can you tell anything else about the sounds?

"And Zadok the priest took an horn of oil out of the tabernacle, and anointed Solomon. And they blew the trumpet; and all the people said, God save king Solomon. And all the people came up after him, and the people piped with pipes, and rejoiced with great joy, so that the earth rent with the sound of them."

1 Kings 1:39-40



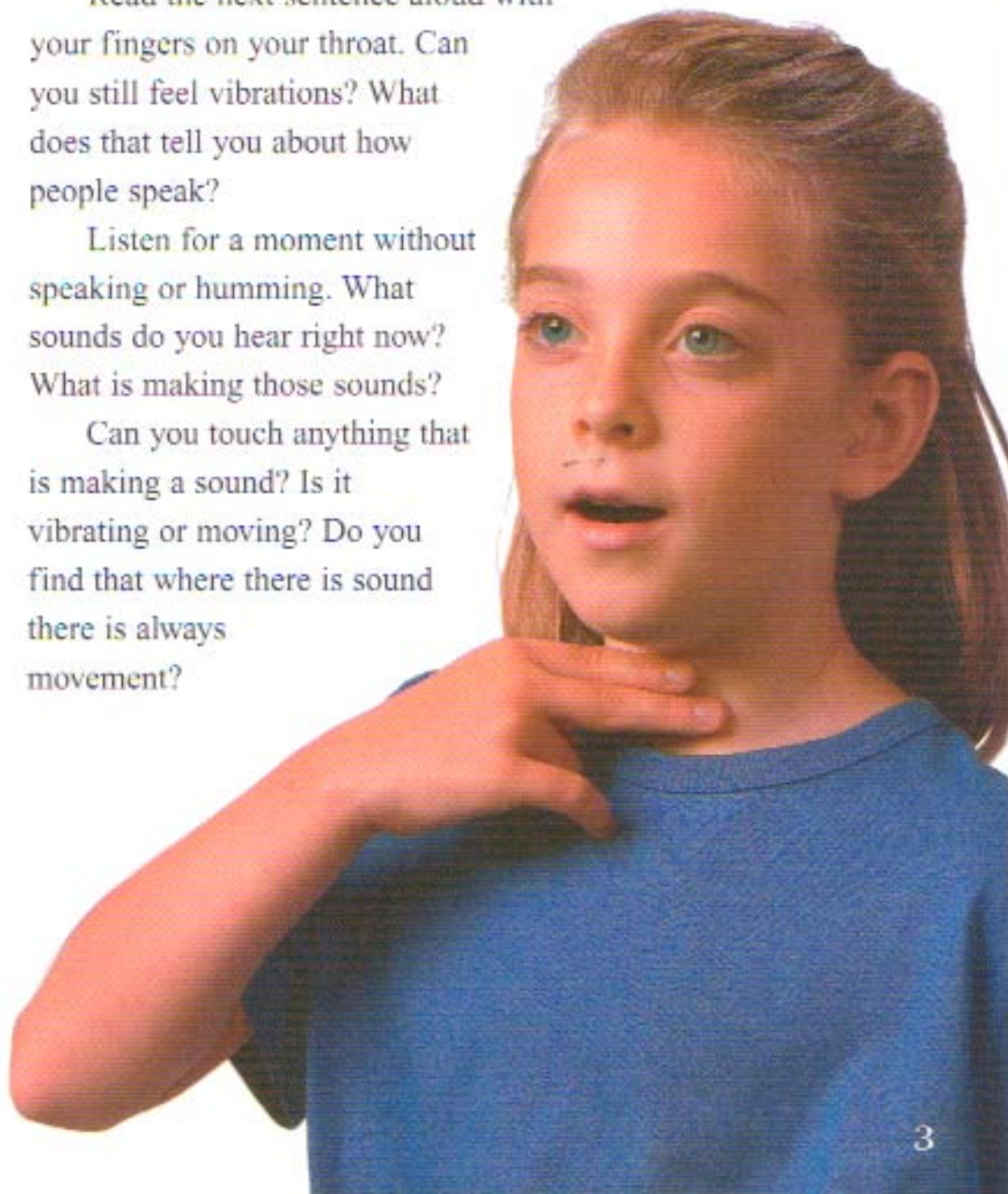
What Causes Sound?

Put two fingers on your throat and hum. What do you feel? When you hum, you cause a *vibration*. A vibration is a moving back and forth. A hum causes parts of your throat to move back and forth.

Read the next sentence aloud with your fingers on your throat. Can you still feel vibrations? What does that tell you about how people speak?

Listen for a moment without speaking or humming. What sounds do you hear right now? What is making those sounds?

Can you touch anything that is making a sound? Is it vibrating or moving? Do you find that where there is sound there is always movement?

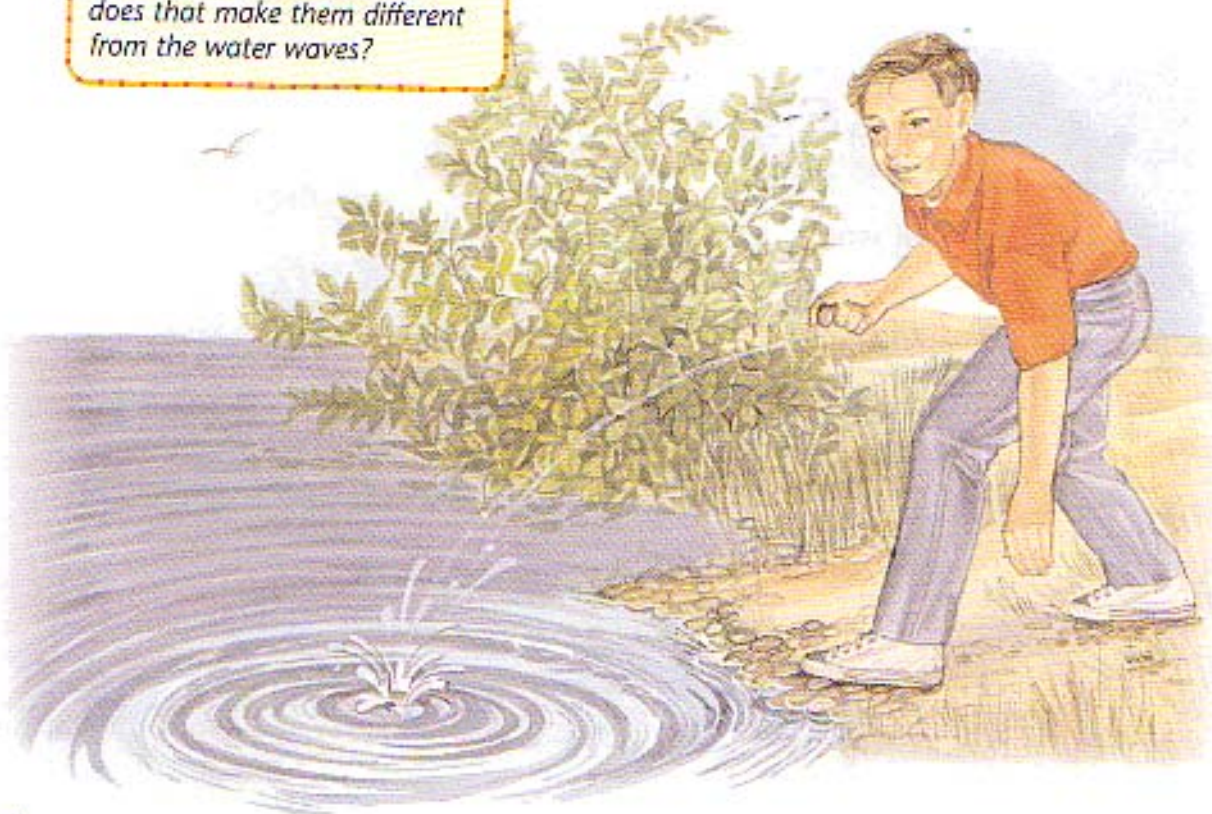


How Does Sound Travel?

Have you ever thrown a stone into a pond or a puddle? What happened to the water when you dropped the stone in? The water moved out from the spot in rings of waves. The rings rippled out until they struck dry land. After a while the water stopped making waves and was still again.

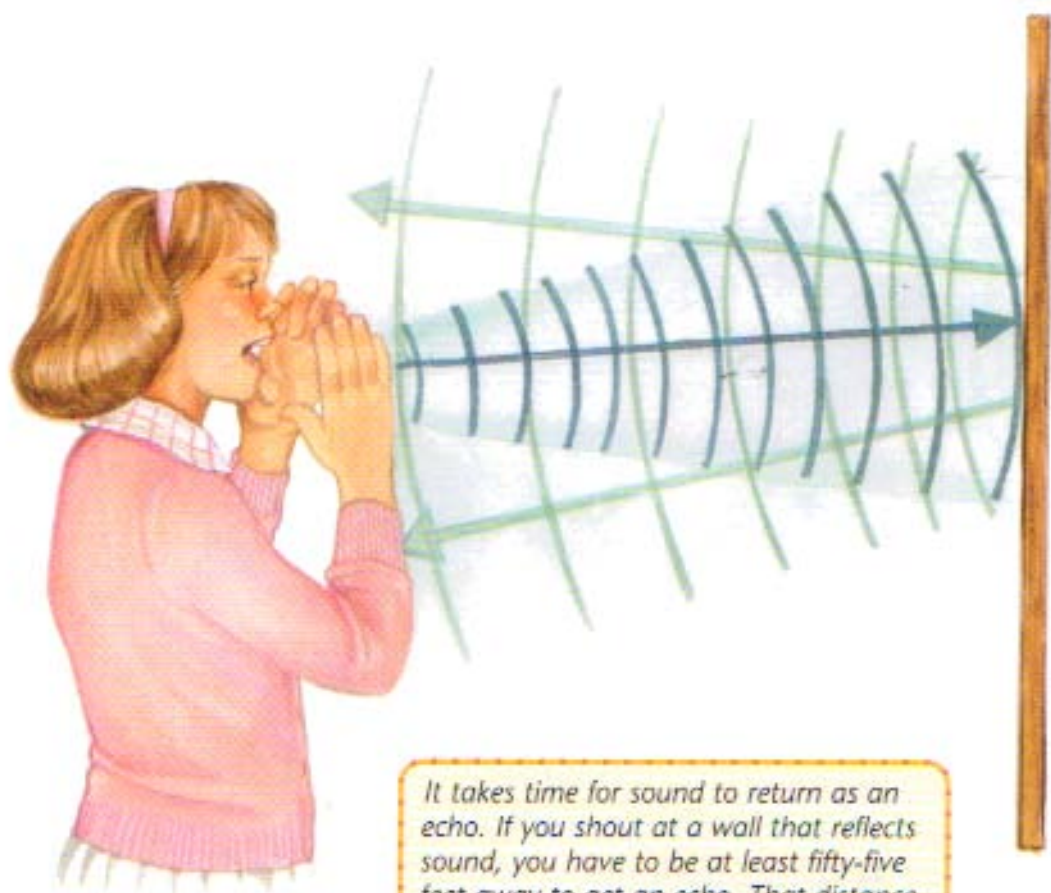
Sound can make ripples in the air. The ripples are something like the ripples on the water, but you cannot see them. Sound goes out in waves through the air until something stops them or bounces them back.

Sound waves go out from their source in all directions. How does that make them different from the water waves?



When sound waves hit an object, they are either *absorbed*—taken in—or they are *reflected*—bounced back. If a sound bounces back well enough for us to hear it again, it is an *echo*.

Large, hard surfaces reflect sound better than other surfaces. Canyons often produce many echoes when sound bounces off their rock walls. But more than a sound and a good surface are needed to make an echo.



It takes time for sound to return as an echo. If you shout at a wall that reflects sound, you have to be at least fifty-five feet away to get an echo. That distance gives the first sound waves enough time to go to the wall and come back without getting mixed with later sound waves.