



How Sound Travels and Why We Hear It

KS3 Ages 11-14 🕒 3 min read

What is Sound?

Sound is all around us, but it's not magic—it's actually made of invisible waves of energy. When something vibrates, or shakes really fast, it creates sound. Think of a speaker, a drum, or your voice box: they all vibrate to make noise. The faster something vibrates, the higher the pitch (how high or low a sound is). The bigger the vibrations, the louder the sound.

How Does Sound Travel?

Sound travels in **waves**, but not like waves in the ocean. Instead, it travels through the **air** (and also through liquids and solids) by making tiny invisible particles bump into each other, like dominoes falling in a chain.

Think of it like pushing people in a crowded hallway: when you push the first person, they bump into the next person, who bumps into the next one, and so on. The message travels down the line.

When something vibrates—say, a bell ringing—it pushes the air particles next to it. Those particles push the ones next to them, and this continues outward in all directions. This is called a **sound wave**. Sound waves need something to travel through: air, water, or solid objects. They cannot travel through empty space, which is why astronauts need radios to talk to each other in space.

How Do Our Ears Work?

Our ears are specially designed to catch sound waves and turn them into something our brain can understand. When sound waves enter your **ear canal**, they make your **eardrum** vibrate. The eardrum is a thin piece of skin stretched tight, like the top of a drum.

Think of your eardrum like the skin on a drum: when you hit a drum, the skin vibrates, and that vibration creates sound. Your eardrum works the opposite way—sound waves make it vibrate.

Behind the eardrum are three tiny bones that pass the vibrations along. These vibrations go to a spiral-shaped part of the ear called the **cochlea**, which is filled with liquid and tiny hair cells. These hair cells detect the vibrations and send messages to your **brain** through the **auditory nerve**. Your brain interprets these messages and tells you what sound you're hearing—whether it's music, a friend's voice, or a warning siren.

Why Can Some Sounds Travel Further Than Others?

Some sounds travel much further than others. Loud sounds create bigger vibrations, so they push the air particles harder and further. Soft sounds create smaller vibrations that don't travel as far. Also, sound can bounce off hard surfaces like walls and create **echoes**. Sound travels slower than light, which is why you see lightning before you hear thunder, even though they happen at the same time.