# How Sound Travels and Why Things Make Noise

KS2 SCIENCE KS3 SCIENCE Ages 10-14 ⏰ 3 min read

## What Makes Sound?

Every sound you hear starts with **vibration**. When something moves back and forth very quickly, it creates sound. When you pluck a guitar string, it vibrates. When a drum is hit, its surface vibrates. Even your voice is made by your **vocal cords** vibrating in your throat. Without vibration, there is no sound.

But vibration alone isn't enough. The vibrating object needs to push something around it to make sound travel. That something is usually **air**.

Think of it like dropping a stone into a pond. The stone creates ripples that spread out across the water in circles. Sound works the same way, except it spreads invisible waves through the air instead of visible ripples through water.

## How Sound Travels Through the Air

When something vibrates, it pushes the air particles next to it. Those particles bump into other air particles, which bump into more particles, creating a chain reaction. These **sound waves** move outward in all directions at a speed of about **343 metres per second** in normal air.

Sound waves are very different from light waves. They need something to travel through—they can't move through empty space. This is why there's no sound on the Moon, even though things happen there. The Moon has no atmosphere, so there's nothing for sound waves to push against.

Think of it like passing a message down a line of people. Each person whispers to the next person, and the message travels along the line. If there's no one to whisper to, the message can't travel.

## Why Do Different Sounds Sound Different?

Not all vibrations are the same. Some objects vibrate quickly and others slowly. A **high-pitched sound** like a whistle comes from fast vibrations. A **low-pitched sound**

like a drum comes from slower vibrations. The number of vibrations per second is called the **frequency**.

The loudness of a sound depends on how much energy the vibration has. A gentle tap makes a quiet sound. A hard hit makes a loud sound because it creates bigger vibrations that push harder on the air.

## Sound Travels Different Ways

Sound can travel through more than just air. It travels through **water**, **metal**, and even **solids** like wood or concrete. In fact, sound often travels faster through solid materials than through air. This is why you can sometimes hear footsteps through a floor before you hear them through the air.