

Nova's Sound Science Challenge

Learning objective: To identify how sounds are made, associate some sounds with something vibrating, and understand how sound travels from a source to our ears.

Read the front of each flashcard carefully. Try to answer the question or define the term before checking the answer provided after the pipe symbol. Use these to test your knowledge of how sound travels through different states of matter.

What is a vibration?

A vibration is a rapid back-and-forth movement of an object that creates sound waves.

How does sound travel to our ears?

Sound travels as waves through a medium, such as air, water, or solids, by causing particles to bump into each other.

What happens to the pitch of a sound if the vibration is faster?

The pitch becomes higher.

Define a 'sound source'.

A sound source is the object or instrument that vibrates to produce a sound, such as a guitar string or a drum skin.

Why can't sound travel in a vacuum (like space)?

Sound needs a medium (particles) to travel through; in a vacuum, there are no particles to carry the vibration.

What is the difference between volume and pitch?

Volume is how loud or quiet a sound is, while pitch is how high or low a sound is.

How do we protect our ears from very loud sounds?

We can use insulation or ear defenders to absorb the sound energy before it reaches our eardrums.

Does sound travel faster through solids, liquids, or gases?

Sound travels fastest through solids because the particles are packed more closely together.

Explain why a drum makes a louder sound when you hit it harder.

Hitting it harder creates a larger vibration, which transfers more energy into the air, creating a louder sound wave.

What part of the human ear detects sound vibrations?

The eardrum, which vibrates when sound waves hit it.