

What Is Sound?

Sound is caused by vibrations. Think about a guitar string being plucked. You can see it vibrating very quickly. Now try singing a note. Put your fingers to your throat. Can you feel your voice box vibrate? Even if you can't see or feel a vibration, all sounds have one.

HOW DO WE HEAR?

Sound travels as a sound wave. Think of the way a ripple spreads over a pond when you throw a stone. If we could see sound, it might look a bit like that. The sound moves through the air to our ear. Sound can also travel through liquids or solids. When it reaches your ear, the sound makes a tiny layer of circular tissue vibrate. This is the ear drum. The vibration carries on through the ear. Finally, a message is sent to the brain. The brain turns this message into sound.

Did you know that there are no sounds in space? There is no air in space so sound waves cannot move through it.

LOUD AND QUIET SOUNDS

Some sound waves are big and some are small. Large sound waves make loud sounds. However, as you move away, the volume decreases. The sound waves spread out and become fainter. Smaller sound waves give us quieter sounds.

The human ear can be damaged by very loud sounds. It is important to look after our ears. You may see people wearing ear defenders at noisy building sites for example. Some people wear ear plugs at loud concerts too.

HIGH AND LOW SOUNDS

The pitch of a sound means how high or low it is. High sounds are caused by quick vibrations. Low sounds are caused by slower vibrations. Some musical instruments allow the player to change the pitch of the notes. A violinist presses the string down with their finger.



This shortens the string and it vibrates faster. Bigger instruments make lower sounds than smaller instruments. A double bass or tuba is much lower than a violin or flute. This is because larger objects vibrate slower.

The human ear can detect many different pitches. This helps us to enjoy music. However, some sounds are too high or low for us to hear. Older people find it harder to hear higher pitches. Some animals can hear sounds that are too high or low for us. Dog whistles make a very high sound which we cannot hear but dogs can. Elephants can hear much lower sounds than humans. They use these low rumbles to call to each other.

RETRIEVAL FOCUS

1. True or False: Sound can only travel through air.
2. Why can't we hear sound in space?
3. What word is used to describe how high or low a sound is?
4. How does hearing change as we get older?
5. Which animals hears very low sounds?

VIPERS QUESTIONS

S

Put these steps in order to explain how we hear:

The vibration travels through the ear to the brain.

An object vibrates.

The brain turns the message into sound.

The vibration hits our ear drum.

The vibration travels through the air to our ear.

V

Find a word which means *gets lower*.

V

In the section 'Loud and Quiet Sounds', which word means *weaker*?

I

How can we tell that our ears are sensitive?

P

Using the text, predict which of these instruments from the oboe family is likely to be able to make the lowest sound.

