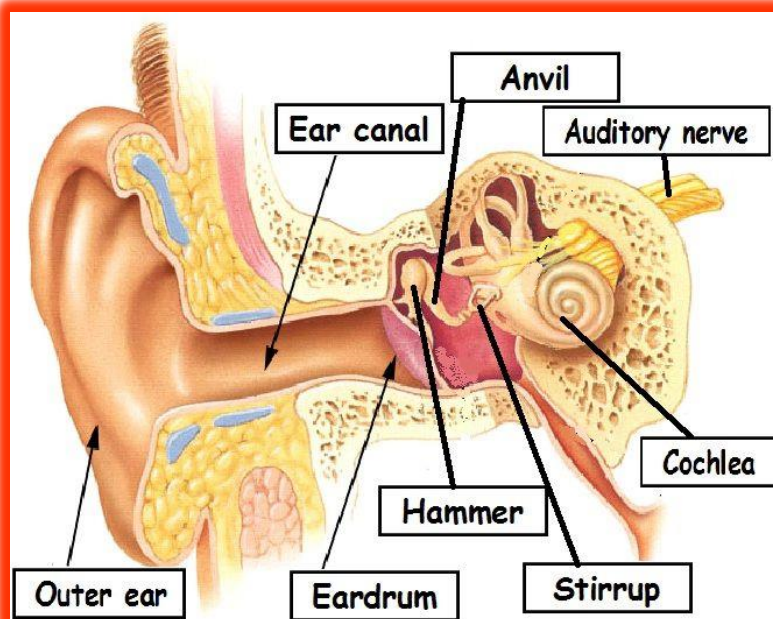


Year 4 Knowledge Organiser- How and why can we hear?

In this topic we will learn to:

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases.
- Use sign language for basic greetings



Previous learning

Y1 topic

You should already know:

- The names of the basic parts of the human body
- Which part of the body is associated with each sense?

Vocabulary Dozen

pitch	How high or low a sound is
volume	How quiet or loud a sound is
vibration	Vibration means quickly moving back and forth (or up and down) about a point of equilibrium. As sound waves move through a medium e.g. the air, the particles vibrate forwards and backwards.
sound waves	Sound waves are formed when a vibrating object causes the surrounding medium, such as air, to vibrate. A medium is a material (solid, liquid or gas) which a wave travels through to reach the ear.
decibel	The unit used to measure how loud or quiet something is
ear canal	The ear canal is a pathway running from the outer ear to the middle ear.
anvil	The anvil is a very small anvil shaped bone in the middle ear. It is one of the three ossicles. It receives vibrations from the hammer.
hammer	The hammer is a small hammer shaped bone in the middle ear. It is one of the three ossicles. The hammer is attached to the inner surface of the ear drum.
stirrup	The stirrup is a small bone found in the middle ear. It is one of the three ossicles. It is the smallest and lightest bone in the body.
eardrum	The eardrum is a thin membrane that separates the ear canal from the middle ear.
cochlea	The cochlea is a hollow, spiral shaped bone found in the inner ear that plays a key role in the sense of hearing.
auditory nerve	The cochlea or auditory nerve carries auditory sensory information from the cochlea directly to the brain.

Key Knowledge

What is a sound?

Every sound we hear is made by something vibrating. As it vibrates it pushes the air around it making the air vibrate too. These vibrations, which are called sound waves, travel through the air to our ears, in little vibrations, which we hear as sounds

Changing sounds

Volume – The closer we are to the sound source, the louder the sound will appear to us. The further away we are from the sound source, the quieter or fainter it will appear. The more energy in the initial vibration, the louder the sound will be. For example, if you tap a hammer on a desk, the sound will be quiet but if you smash a hammer on a desk, it would be much louder

Pitch – pitch is how high or low a note is. A squeak of a mouse has a high pitch. A moo from a cow has a low pitch.

How do we hear sound?

Ears allow us to hear sound. They respond to vibrations in the air and send nerve signals to the brain, where they are interpreted as sounds. Sounds are funnelled through the outer ear, through the ear canal to our ear drum, making it vibrate. These vibrations are picked up by our brain and converted to sounds that we recognise.

How does sound travel?

Sounds can travel in 2 ways.

1. They can travel through the air. An example of this is when you are watching tv or listening to music and the sound travels from the speaker, across the room and into your ear.
2. Sound can also travel through a medium (material) such as; water, glass, stone and brick. For example, if someone is playing music next door or moving furniture around upstairs the sound can travel through the walls or floor to you.

Useful Weblinks

1. <https://www.bbc.co.uk/bitesize/topics/zgffr82>



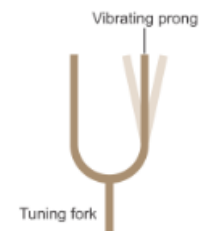
2. <https://www.bbc.co.uk/teach/class-clips-video/music--science-ks2-what-is-sound/zbnmhbk>



When we hit the drum, membrane of drum vibrates producing sound



When we play a guitar, the string on it makes to and fro motion and produces sound



Sound produced by vibrating prong of tuning fork