



Key Vocabulary

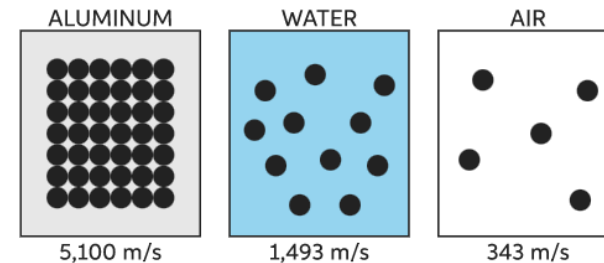
Word	Meaning
vibration	A quick movement back and forth about a point.
sound wave	Vibrations travelling from sound source.
medium	A substance in which sound waves travel. Air, for example, is a sound medium.
volume	The loudness of sound.
amplitude	The size of a vibration. The larger the amplitude, the louder the sound.
pitch	How high or low the sound is.
frequency	How often a sound wave repeats per second. The higher the frequency, the higher the pitch.
cochlea	A hollow tube in the inner ear that is usually coiled like a snail shell and contains the sensory organ of hearing.
pinna	The largely cartilaginous part of the external ear.
ear drum	The membrane of the middle ear, which vibrates in response to sound waves.
auditory nerve	The auditory nerve is a bundle of nerve fibres that carries hearing information between the cochlea the brain.
echo	A sound or sounds caused by the reflection of sound waves from a surface back to the listener.

What is sound?

Sound is created when something vibrates and sends waves of energy (**vibration**) into our ears. The vibrations travel through the air or another medium (solid, liquid or gas) to the ear. The stronger the vibrations, the louder the sound. Sounds are fainter the further you get from the sound source.

How does sound travel?

Sound travels as a **wave**. The speed at which sound travels depends on the **medium** which it is travelling through. When there is no medium, sound is unable to travel. Of the three mediums – solid, liquid and gas – sound waves travel the slowest through gases, faster through liquids and fastest through solids.



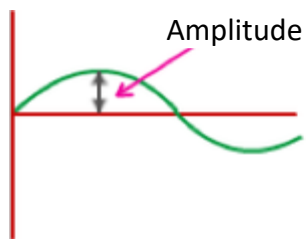
Notable Scientists

Aristotle	The Greek philosopher, Aristotle, was one of the first people to claim that sound travelled in waves.
Galileo	The Italian physicist, Galileo, was the first scientist to record the relationship between the frequency of the wave and the pitch it produces.
Mersenne	The French Mathematician, Mersenne, was the first person to record the speed of sound.
Boyle	The British scientist was the first to discover that sound waves must travel through a medium

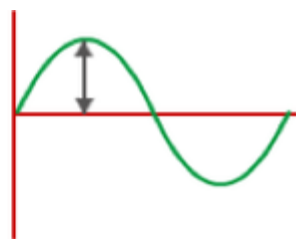


Volume and Pitch

The **volume** of a sound refers to how loud or quiet a sound is. On a sound wave diagram, the larger the amplitude of the wave, the louder the sound that the wave is depicting.

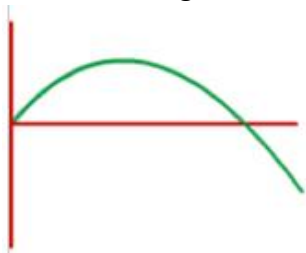


Quieter

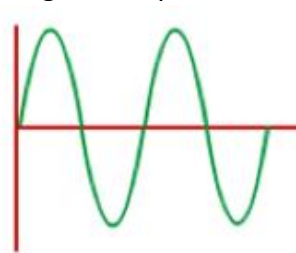


Louder

The **pitch** of a sound refers to how high or low the sound is. On a sound wave diagram, the frequency of the wave (the number of waves passing a point in a second) shows us what pitch the sound is. The higher the frequency, the higher the pitch.



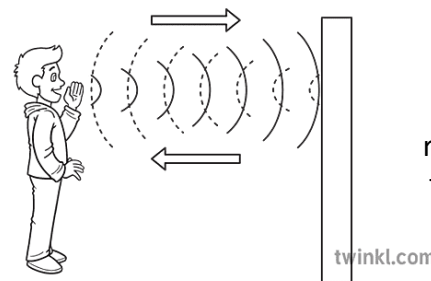
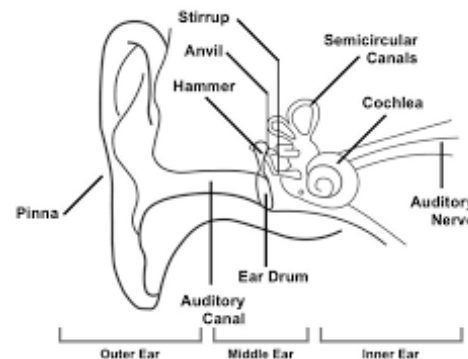
Lower Pitch



Higher Pitch

How do we hear?

Once in your ear, vibrations travel down the ear canal until they reach the eardrum. The eardrum sends the vibrations through the middle ear bones (the hammer, the anvil and the stirrup) into the inner ear. The inner ear is known as the cochlea and is shaped a bit like a snail. There are thousands of tiny hair cells inside the cochlea. These hair cells change the vibrations into electrical signals that are sent to the brain through the hearing nerve. The brain tells you that you are hearing a sound and what that sound is.



Echo, echo, echo...

Like other waves, some sound waves reflect off of solid objects when they hit them. When the sound wave reflects, it bounces back to the listener's ears, causing an echo!

Extending your Learning

1. Visit BBC Bitesize to learn more - <https://www.bbc.co.uk/bitesize/topics/zgffr82>
2. Make a string phone - <https://www.youtube.com/watch?v=3yqB2KFwJCo>
3. Use your knowledge to play music using only glasses of water – <https://www.youtube.com/watch?v=ULiNR-k4m70>



Knowledge Organiser Revision Schedule

Here is the revision schedule for this half term's knowledge organiser. Please help your child to learn the specified section each week.

Week	Knowledge Organiser Section to Learn
Week 1 – wc 9/1/23	What is sound?
Week 2 – wc 16/1/23	Volume and Pitch
Week 3 – wc 23/1/23	How do we hear?
Week 4 – wc 30/1/23	How does sound travel?
Week 5 – wc 6/2/23	Notable Scientists