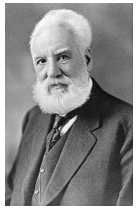
Science – Year 4
Sound

Vocabulary		
Tier 1	Tier 2	Tier 3
Listen	Soundwave	Absorb
Volume	Vibration	Insulation
Pitch	Eardrum	Soundproof
Travel	Ear canal	Amplitude
Distance	Inner ear	Transmission
Transport	Outer ear	Cochlea

<u>Useful Resources</u>

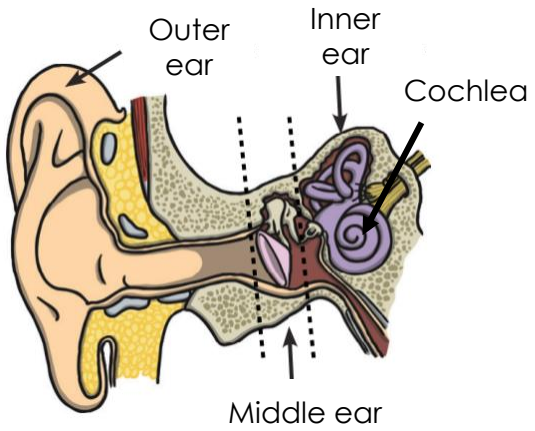
- Models of the different parts of the ear.
- Video clips and physical actions to show how sound waves travel through the air.
- A range of instruments to make and measure different sounds.

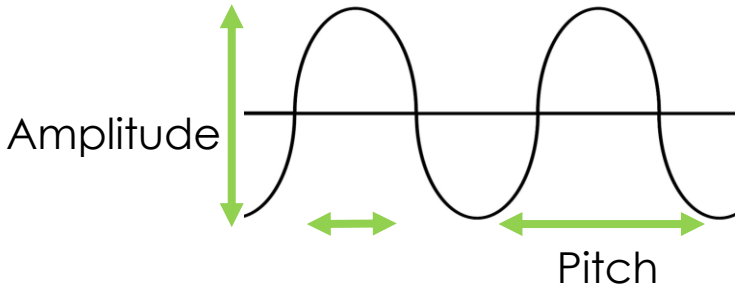
Key Scientists:



Alexander Graham Bell (1847 – 1922) – was a Scottish scientist who invented the first telephone. Sound can be measured in decibels, which are named after Alexander Graham Bell.

Parts of the Ear





<u>Key Questions/Facts</u>

How does sound travel?

- Sounds are made when particles vibrate or collide with one another.
- The vibrations travel though the air until they reach our ears.
- The louder the sound, the bigger the vibration.
- The size of the vibration is called the amplitude.

How does the ear hear sound?

- The vibrations travel into the ear canal until they reach the eardrum.
- The eardrum passes the vibrations through the middle ear bones (the hammer, the anvil and the stirrup) into the inner ear.
- The inner ear is called the cochlea. Inside the cochlea, there are thousands of tiny hair cells.
- 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.

How does sound change?

- Amplitude is a measure of how loud or quiet a sound is, and pitch is a measure of how high or low a sound is.
- The pitch of a sound is related to frequency.
- The frequency is the speed of the vibrations when a sound is played.
- If an object vibrates quickly, we hear a high-pitched sound and if an object vibrates slowly, we hear a low-pitched sound.