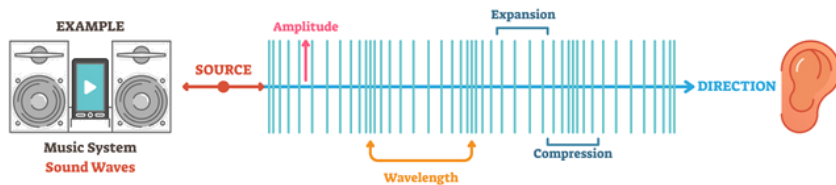


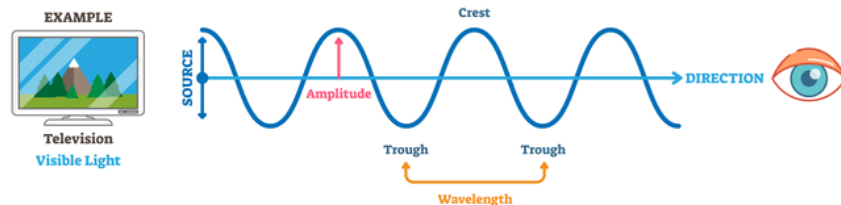
Year 4: Sound

SOUND WAVES:

LONGITUDINAL WAVES



TRANSVERSE WAVES



Sound is a form of energy that transfers in a longitudinal wave - like that seen in a slinky - not a transverse wave - like that seen in water ripples.

Sound travels through a medium (e.g. particles in the air)

Sound can travel through solids (e.g. when we place a glass next to a wall to hear better).

Sound can not travel through a vacuum (e.g. in space) which has no particles in it at all.

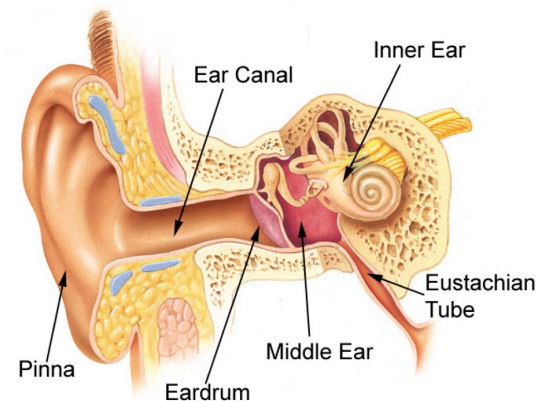
SOUND GENERATION:

Pitch is how high or low a sound is and this is determined by how many vibrations per second are being made by the vibrating object; the number of vibrations per second is called frequency

Volume is how loud or quiet a sound is and this is determined by the amount of energy in the wave (e.g. how hard or soft a percussion instrument is hit).

The volume of a sound is quieter if the listener is further away from the object, because the sound waves have lost some of their energy.

HOW WE HEAR:



Sound waves (the vibrations of particles) hit the ear drum.

These sound waves are sent via very small bones and nerves to the brain.

The brain interprets the signals send from the ear and translates them to sound.

SPEED OF SOUND:

Sound travels at different speeds through different objects.

Sound travels at around 340 metres per second in the air.

Sound travels much quicker through solids - around 6000 metres per second—as the particles are closer together.

Sound travels much slower than light; this is why we often hear thunder after we see lightning as the light reaches our eyes before the sound reaches our ears.

Material	Speed of Sound (m/s)
Air	343
Wood	3960
Water	1493

WHO:



Ludwig Van Beethoven

1770 - 1827

Ludwig Van Beethoven was a German composer and pianist.

Beethoven remains one of the most admired composers in the history of Western music; his works rank among the most performed of the classical music repertoire.

KEY VOCABULARY:



FREQUENCY: a measure of how many times per second the sound wave cycles



LONGITUDINAL WAVE: a wave vibrating through a medium



PARTICLE: a minute portion of matter



PITCH: how high or low a sound is



SOUND WAVES: invisible waves that travel through air, water and solid objects as vibrations.



VIBRATE: invisible waves that move quickly



VOLUME: how loud or quiet a sound is