



Year 4 Sound

Strand: Physics

Big idea: Energy, which cannot be created or destroyed, comes in many different forms. Sound waves are a form of energy.

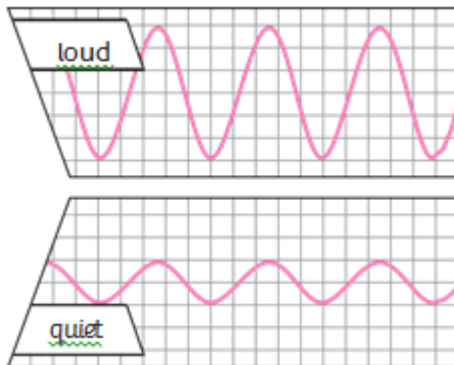
Big questions: How do instruments make different sounds?

Key Knowledge

Sound is a type of energy. Sounds are created by **vibrations**. The louder the sound, the bigger the **vibration**.

Volume

The louder the volume, the bigger the vibrations. The size of the vibration is called the **amplitude**. Quieter volumes have smaller amplitudes and louder sounds have larger amplitudes



How do we hear?

Inside your ear, the vibrations hit the eardrum and are then passed to the middle and then the inner ear. They are then changed into electrical signals and sent to your brain. Your brain tells you that you are hearing a sound.



Inside the human ear

Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-pitched sound. A rumble of thunder is an example of a low-pitched sound.



Pitch is determined by how many vibrations per second are being made by the vibrating object; the number of vibrations per second is called frequency.

DID YOU KNOW?

Sounds get fainter (quieter) as the distance from the sound source increases.

Hertz's research paved the way for the development of radio, television, and radar. The unit of frequency used for all kinds of waves and vibrations is named after him. One Hertz is equal to one vibration per second.



Heinrich Hertz (1857-94)

Stringed Instruments

Tighter, thinner or shorter strings make higher pitches. Faster vibrations make pitches high and slower vibrations make pitches low.



Wind Instruments

The column of air inside the instrument causes it to vibrate. Shortening this makes a higher sound, lengthening it makes a lower sound.



Topic vocabulary

vibration	A movement backwards and forwards.
Sound wave	Vibrations travelling from a sound source
volume	The loudness of a sound
pitch	How high or low a sound is
amplitude	The size of a vibration. A larger amplitude, the louder sound
ear drum	A part of the ear which is a thin, tough layer of tissue that is stretched out like a drum skin. It separates the outer ear from the middle and inner ear. Sound waves make the eardrum vibrate.
distance	A measurement of length between two points.
particles	Solids, liquids and gases are made of particles. They are so small we can't see them