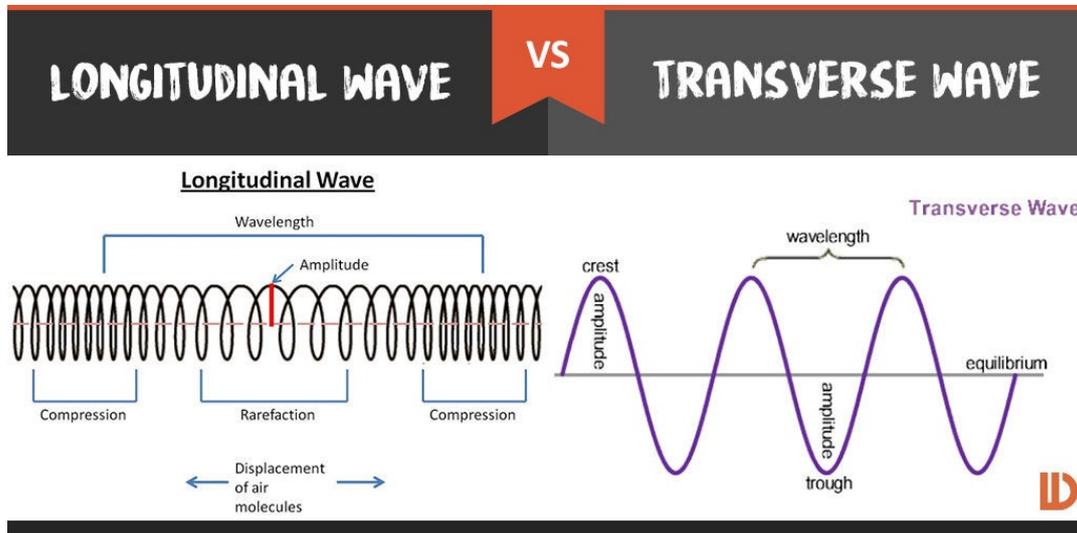


SOUND

Sound consists of vibrations which travel as a longitudinal wave through substances. The denser the medium, the faster sound travels. Sound does not travel through a vacuum.

A transverse wave moves up and down.

Particles move back and forth in the direction the wave travels.



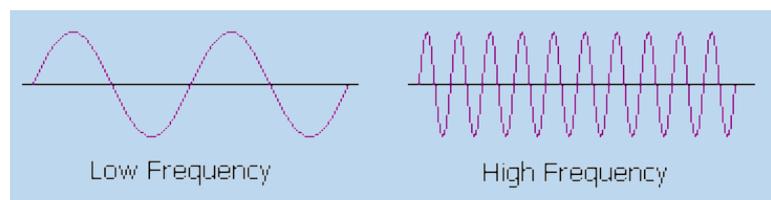
The greater the amplitude of the waveform, the louder the sound.



The greater the frequency (and therefore the shorter the wavelength), the higher the pitch.

Low Pitch

High Pitch

Keywords

Vibration: A back and forth motion that repeats.

Waves: Vibrations that transport energy from place to place without transporting matter.

Transverse wave: Where the direction of vibration is perpendicular to that of the wave.

Longitudinal wave: Where the direction of vibration is the same as that of the wave.

Volume: How loud or quiet a sound is, in decibels (dB).

Pitch: How low or high a sound is. A low (high) pitch sound has a low (high) frequency.

Amplitude: The maximum amount of vibration, measured from the middle position of the wave, in metres.

Wavelength: Distance between two corresponding points on a wave, in metres.

Frequency: The number of waves produced in one second, in hertz.

Absorption: When energy is transferred from sound to a material.

When a wave travels through a substance, particles move to and fro. Energy is transferred in the direction of movement of the wave.

Waves of higher amplitude or higher frequency transfer more energy.

Keywords

Vacuum: A space with no particles of matter in it.

Oscilloscope: Device able to view patterns of sound waves that have been turned into electrical signals.

Auditory range: The lowest and highest frequencies that a type of animal can hear.

Echo: Reflection of sound waves from a surface back to the listener.

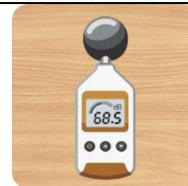
Microphone: Turns the pressure wave of sound hitting it into an electrical signal.

Loudspeaker: Turns an electrical signal into a pressure wave of sound.

Pressure wave: An example is sound, which has repeating patterns of high-pressure and low-pressure regions.

Ultrasound: Sound waves with frequencies higher than the human auditory range.

Transmission: Where waves travel through a medium rather than be absorbed or reflected.



**Sound travels at 330m/s in air.
A million times slower than light.**

**This is a sound meter.
It measures volume in dB.**

Subject	Year 7 Waves
Sound travels through s _____, l _____, and g _____.	Solid, liquid and gas.
Sound does not travel through a v _____.	Vacuum.
Why can you not be heard in space?	No particles in space/a vacuum.
To create sound, particles must do what?	Vibrate.
What type of wave is sound?	Longitudinal.
The maximum vibration of the wave is called the a _____.	Amplitude.
When we play a guitar, what vibrates to create the sound?	Strings.
When we play the drums, what vibrates to make the sound?	Drum skin.
Imagine a large vibration. How would this sound?	Loud.
An oscilloscope allows us to see a sound wave. Draw a wave pattern for a soft sound.	
Draw a wave pattern for a high pitched sound.	
How fast does sound travel (m/s)?	330m/s
Why is sound faster in a liquid?	More particles to vibrate.
What is an echo?	Reflected sound waves.
What is the wavelength of a wave?	Distance from wave peak to wave peak.
What does frequency mean?	Number of waves per second.
If a sound is high pitched what has happened to the frequency?	Increased.
What units do we measure sound in?	dB.
Write an energy transfer equation for a microphone.	Sound → Electrical.
Write an energy transfer equation for a loudspeaker.	Electrical → Sound.

Subject	Year 7 Waves
Sound travels through s_____, l_____, and g_____.	
Sound does not travel through a v_____.	
Why can you not be heard in space?	
To create sound, particles must do what?	
What type of wave is sound?	
The maximum vibration of the wave is called the a_____.	
When we play a guitar, what vibrates to create the sound?	
When we play the drums, what vibrates to make the sound?	
Imagine a large vibration. How would this sound?	
An oscilloscope allows us to see a sound wave. Draw a wave pattern for a soft sound.	
Draw a wave pattern for a high pitched sound.	
How fast does sound travel (m/s)?	
Why is sound faster in a liquid?	
What is an echo?	
What is the wavelength of a wave?	
What does frequency mean?	
If a sound is high pitched what has happened to the frequency?	
What units do we measure sound in?	
Write an energy transfer equation for a microphone.	
Write an energy transfer equation for a loudspeaker.	

Subject	Year 7 Waves
Sound travels through s_____, l_____, and g_____.	
Sound does not travel through a v_____.	
Why can you not be heard in space?	
To create sound, particles must do what?	
What type of wave is sound?	
The maximum vibration of the wave is called the a_____.	
When we play a guitar, what vibrates to create the sound?	
When we play the drums, what vibrates to make the sound?	
Imagine a large vibration. How would this sound?	
An oscilloscope allows us to see a sound wave. Draw a wave pattern for a soft sound.	
Draw a wave pattern for a high pitched sound.	
How fast does sound travel (m/s)?	
Why is sound faster in a liquid?	
What is an echo?	
What is the wavelength of a wave?	
What does frequency mean?	
If a sound is high pitched what has happened to the frequency?	
What units do we measure sound in?	
Write an energy transfer equation for a microphone.	
Write an energy transfer equation for a loudspeaker.	

