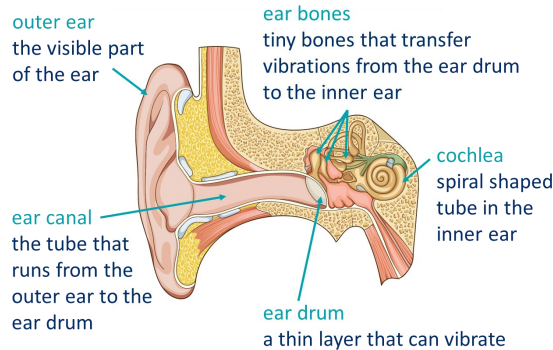


**What should I already know?**  
 What are vibrations?  
 What is volume?  
 How do different materials insulate sound?  
 What is "pitch"?

**Enquiry Question**  
 How does the distance from the sound source affect the volume of the sound?

Vocabulary	
Vibration	a quick back-and-forth movement
Sound	vibrations that travel through the air, or another medium, and are heard when they reach an ear
Volume	how loud or quiet a sound is
Pitch	- how high or low a sound is
Decibel (dB)	a measure of the loudness of a sound
Insulate	to protect something from the transfer of heat, sound or electricity
High-pitched	describes a high sound
Low-pitched	describes a low sound
Back-ground noise	any type of noise that is not the sound that you are listening to or measuring



Sounds are vibrations	Volume	Pitch
<p>Sound is a type of energy made by vibrations.</p> <p>When an object, such as a guitar's string, vibrates it causes air particles around it to vibrate too. This causes the air particles next to those to vibrate, and the ones next to those and so on and so on. This is called a sound wave. Imagine throwing a stone into a pond and watching the ripples - that is similar to how sound waves work.</p> <p>When sound waves reach your ears they vibrate a part of your <b>inner ear</b> called your <b>eardrum</b>, and your brain interprets this into sounds. Sound waves travel through <b>gases</b>, such as air, but they can also travel through <b>liquids</b> (such as water) and <b>solids</b> (such as metal, stone and wood).</p>	<p>Sounds are vibrations that travel as waves of energy into our ears.</p> <p>The volume of a sound is how loud or quiet the sound is.</p> <p>A nail hit hard with a hammer will have a lot of energy so will cause a <b>strong vibration</b>. This means the sound waves will be tall, which means it will make a loud sound.</p> <p>A nail hit softly with a hammer will have little energy so will cause a <b>small vibration</b>. This means the sound waves will be short, which means it will make a <b>quiet sound</b>.</p> <p>Sounds lose their energy as they travel, which is why sounds become <b>quieter</b> the further away you are from the source. A sound that makes a strong vibration will have more energy and will travel further than a sound that make a weak vibration</p>	<p>Pitch is the highness or lowness of a sound.</p> <p>Pitch is caused by the frequency of vibrations - how many times vibrations go back and forth per second.</p> <p>The higher the rate of vibrations, the higher the pitch. These have tight, short frequency waves.</p> <p>Lower pitch sounds have a lower rate of vibrations. They are more loose, spaced out waves.</p> <p>Humans can hear a large range of pitches from high-pitch sounds, e.g. a mouse squeak, to low-pitch sounds, e.g. the rumble of an earthquake.</p> <p>However, some sounds are too high or low-pitched for us to hear.</p>
<p>Sound travels through a gas, liquid or solid. no medium = no sound</p> <p>Gas Fast Liquid Faster Solid Fastest</p>	<p>Quiet Loud</p> <p>Time → Time →</p> <p>quiet volume loud volume</p>	<p>High Frequency Low Frequency</p>