

## Y4 Knowledge Organiser - Science (Physics) - Term 3 2020 - Sound


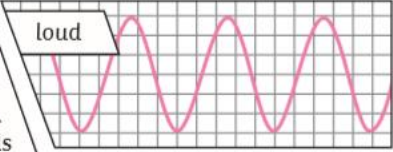
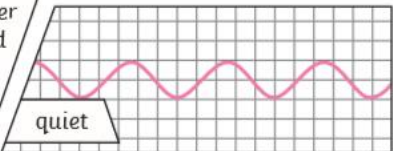


Identify how sounds are made, associating some of them with something vibrating

Recognise that vibrations from sounds travel through a medium to the ear

Find patterns between the pitch of a sound and features of the object that produced it

Find patterns between the volume of a sound and the strength of the vibrations that produced it

Recognise that sounds get fainter as the distance from the sound source increases.

Key Vocabulary		Key Knowledge	
<b>vibration</b>	A movement backwards and forwards.	Sound is a type of energy. Sounds are created by <b>vibrations</b> . The louder the sound, the bigger the <b>vibration</b> .	
<b>sound wave</b>	<b>Vibrations</b> travelling from a sound source.		
<b>volume</b>	The loudness of a sound.		
<b>amplitude</b>	The size of a <b>vibration</b> . A larger <b>amplitude</b> = a louder sound.		
<b>pitch</b>	How low or high a sound is.		
<p>The size of the <b>vibration</b> is called the <b>amplitude</b>. Louder sounds have a larger <b>amplitude</b>, and quieter sounds have a smaller <b>amplitude</b>.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>loud</p>  </div> <div style="text-align: center;"> <p>quiet</p>  </div> </div>			
<p>You can change the <b>pitch</b> of a sound in different ways depending on the type of instrument you are playing.</p>		<p>For example, if you are playing a xylophone, striking the smaller bars with the beater causes faster <b>vibrations</b> and so a higher <b>pitched</b> note. Striking the larger bars causes slower <b>vibrations</b> and produces a lower note.</p> <div style="display: flex; justify-content: space-around;">   </div>	

Key Vocabulary	
<b>ear</b>	An organ used for hearing.
<b>particles</b>	Solids, liquids and gases are made of <b>particles</b> . They are so small we are unable to see them.
<b>distance</b>	A measurement of length between two points.
<b>soundproof</b>	To prevent sound from passing.
<b>absorb sound</b>	To take in sound energy. Absorbent materials have the effect of muffling sound.
<b>vacuum</b>	A space where there is nothing. There are no <b>particles</b> in a vacuum.
<b>eardrum</b>	A part of the <b>ear</b> which is a thin, tough layer of tissue that is stretched out like a drum skin. It separates the outer <b>ear</b> from the middle and inner <b>ear</b> . <b>Sound waves</b> make the eardrum <b>vibrate</b> .

**Key Knowledge**  
 Sound can travel through solids, liquids and gases. Sound travels as a **wave**, **vibrating** the **particles** in the medium it is travelling in. Sound cannot travel through a **vacuum**.

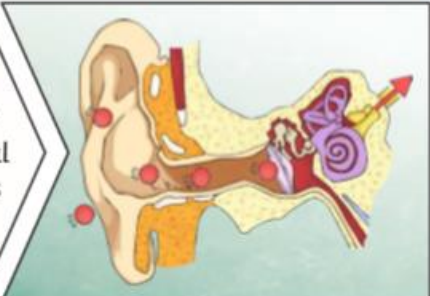
When you hit the drum, the drum skin **vibrates**. This makes the air **particles** closest to the drum start to **vibrate** as well.



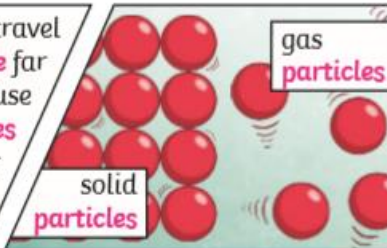
The **vibrations** then pass to the next air **particle**, then the next, then the next. This carries on until the air **particles** closest to your ear **vibrate**, passing the **vibrations** into your **ear**.



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.



Sound energy can travel from **particle to particle** far easier in a solid because the **vibrating particles** are closer together than in other states of matter.



If you throw a stone in a pond, it will produce ripples. As the ripples spread out across the pond, they become smaller. When sound **vibrations** spread out over a **distance**, the sound becomes quieter, just like ripples in a pond.

