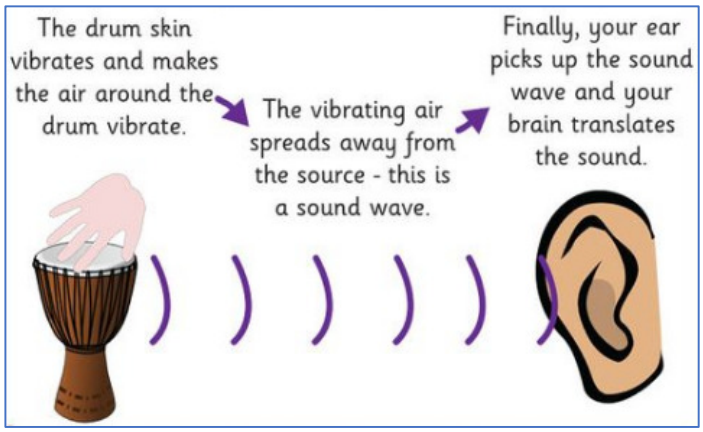
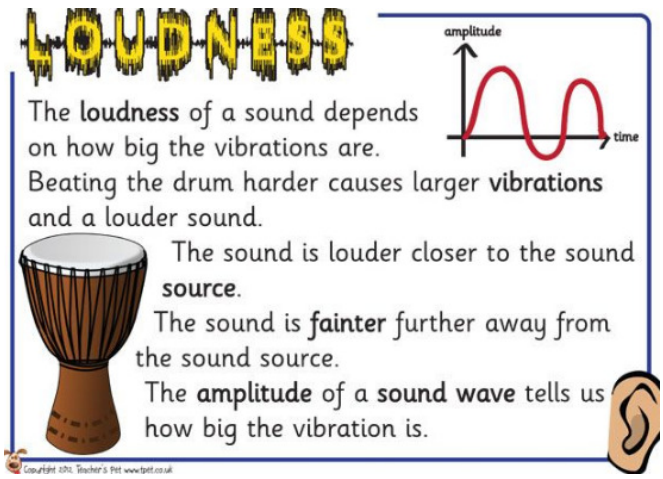
Willerby Carr Lane Primary School - Science		
Topic: Sound	**Year: 4**	**Strand: Physics**

What should I already know?
• Hearing is one of our 5 senses. • We use our ears to hear. • Sounds vary – loud, quiet, high pitch, low pitch. • Sounds can be combined using musical instruments. • From Music, pupils will be aware of pitch, tempo and pulse.

What will I know by the end of the unit?	
What is sound?	• Sound is the movement of energy through objects or substances in longitudinal waves. A thing that can be heard. The object that makes the sound is called the source.
How is a sound made?	• When objects vibrate, a sound is made. • The vibration makes the air around the object vibrate and the air vibrations enter your ear. • These are called sound waves. • If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations • The energy is transferred through the substance in a wave. Typically, the energy in sound is far less than other forms of energy.
How do sounds travel?	• Sound waves travel through a medium (such as air, water, glass, stone, and brick). • For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall.
How do sounds change?	• Pitch: The pitch of a sound is how high or low it is. ○ A squeak of mouse has a high pitch. ○ A roar of a lion has a low pitch. • Volume: The volume of a sound is how loud or quiet it is. ○ When a sound is created by a little amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound. ○ A small tap of a hammer is used with small amounts of energy and so creates a quiet noise. • A vibration with lots of energy makes a powerful sound wave and therefore a loud sound.
	○ A powerful, smashing tap of a hammer is used with lots of energy and so creates a loud noise
How do we measure sound?	• Decibels measure how loud a sound is.





Vocabulary	
cochlea	the part of the inner ear involved in hearing. it is a spiral-shaped cavity.
compression	when things are squeezed or pressed together.
decibels	measure how loud a sound is.
ear drum	also called the tympanic membrane or myringa, is a thin, cone-shaped membrane that separates the external ear from the middle ear.
longitudinal waves	waves that travel away from a source.
middle ear	an air-filled, membrane-lined space located between the ear canal and the eustachian tube, cochlea, and auditory nerve
outer ear	the ear we can see!
pitch	pitch is used to describe how high or low a sound is.
sound	sound is a type of energy that is created by vibrations.
soundproof	soundproof is when you try to stop a sound passing through something.
vibrations	vibrations are when things move back and forward very quickly.
volume	volume is what we use to say how loud or quiet sound is.
waves	waves or sound waves are created when things vibrate to make a sound. we cannot see these but often scientists draw what they think they would look like.

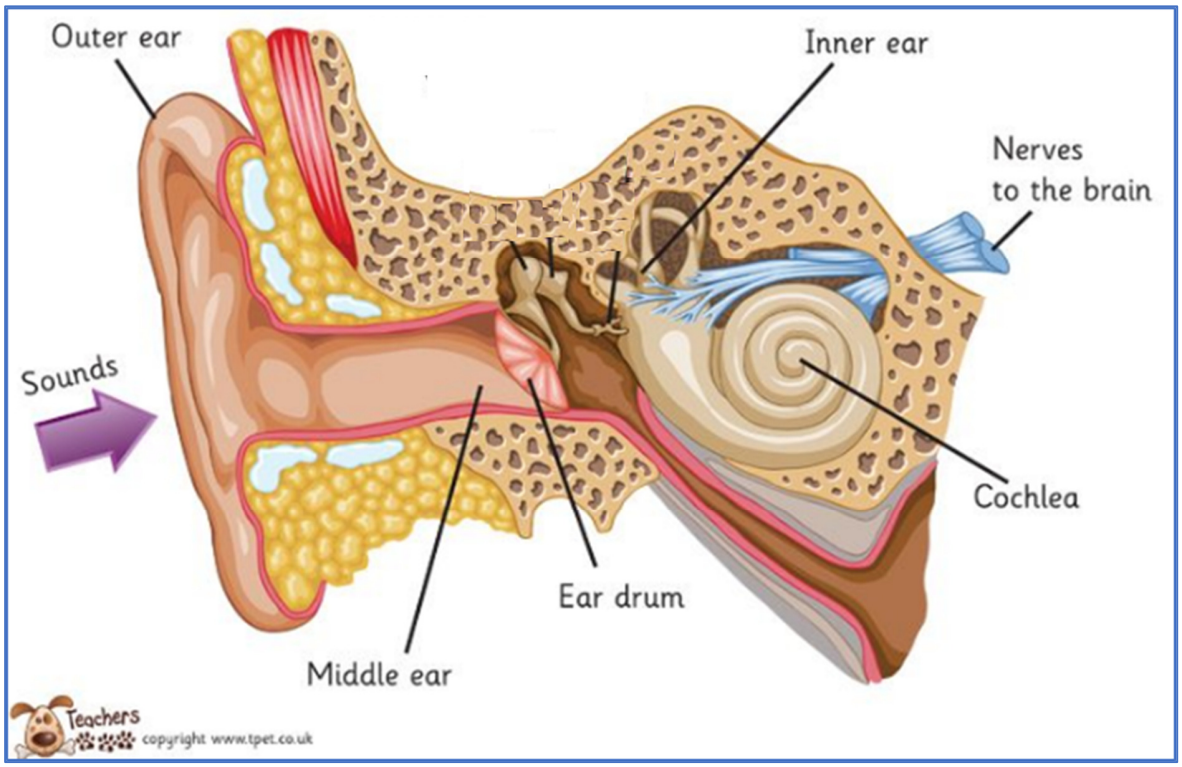
Investigate!

- Measure levels of sound around school and identify what is vibrating to produce the sound.
- Fill identical jars with different volumes of water. Which one creates the highest pitch?
- Make musical instruments using different length strings (e.g. fishing wire/ straws). How do their pitches differ?

Common misconceptions

Pitch and volume are frequently confused, as both can be described as high or low.

- sound is only heard by the listener
- sound only travels in one direction from the source
- sound can't travel through solids and liquids
- high sounds are load and low sounds are quiet.


Outer ear
Inner ear
Nerves
to the brain
Sounds
Cochlea
Ear drum
Middle ear
Teachers
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