Name:		Date:	

P12 4 More about waves

Worksheet Grade

Current ⇒ Target

Key Questions

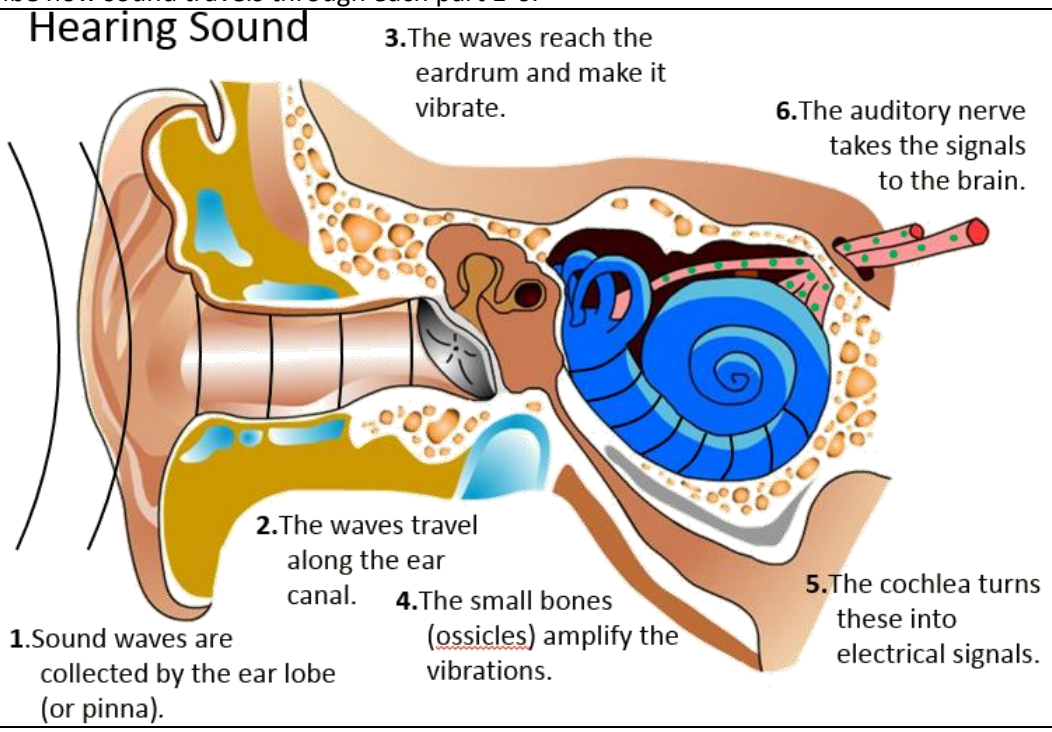
1. What are sound waves?
2. How can we can investigate waves?

Lesson Objective

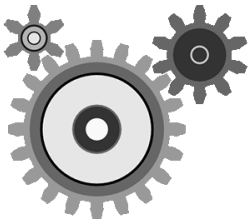
To be able to identify sound waves and know how to investigate them waves.

	Level	Achieved
State that sound waves require a medium to travel in.	4	
Describe how sound waves travel more quickly in solid than they do in gases.	5	
Calculate the speed of waves using the wave speed equation.	6	
Evaluate the suitability of apparatus for measuring the frequency, wavelength, and speed of waves	7	
Explain why the wavelength of a wave in a particular medium changes as the frequency changes.	8	

Describe how sound travels through each part 1-6.



What is a mechanical wave?



A Mechanical Wave is a wave that travels as a displacement of matter, and therefore transfers energy through a medium.

Mechanical Waves cannot travel through a vacuum.

How are sound waves produced and how do we hear them?

- **Vibration or Oscillation of Particles**
- **Vibration is Parallel to the direction of energy transfer of the wave**
- **Transmission by Particles**

What is the speed formula?

Speed = Distance ÷ Time

How does sound travel through solids?

The particles in a solid are very close together so can pass on the vibration quickly to the next particle

What is the difference in the speed of sound between solids and gases?
Why is this?

The speed of sound is slower in gases.
This is because The particles in a gas are spread out so <u>cannot</u> pass on the vibration quickly to the next particle.

What is an echo?

A reflection of sound.

Why can't sound travel through a vacuum?

There are no particles in a vacuum.

Name 2 ways in which the speed of sound can be investigated (solids and liquids)

A ripple tank
A stretched string using a signal generator and loudspeaker