

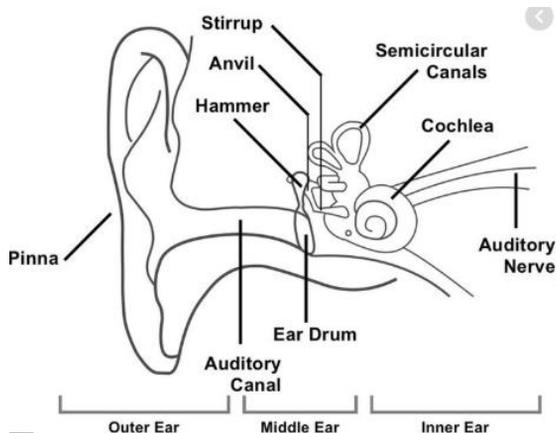
# Knowledge Organiser

|                      |              |               |                 |
|----------------------|--------------|---------------|-----------------|
| <b>Science Focus</b> | <b>Sound</b> | <b>Year 4</b> | <b>Autumn 1</b> |
|----------------------|--------------|---------------|-----------------|

## What? (Key Knowledge)

|   |  |
|---|--|
| Sound is a form of energy.  | <b>Sound energy</b> travels in the <b>form</b> of waves. Unlike light <b>energy</b> , <b>sound</b> cannot travel through a vacuum, because there are no atoms to transmit the vibration.   |
| Sounds are made when something vibrates.                            | The vibrating object pushes the air out in waves, which are not like waves in water (up-and-down), but horizontally spreading outwards from the source. Particles of air knock into ones next to them. Each particle moves only a short way, with energy being transferred as a series of pulses (squashed and then spread out). |
| Vibrations from a sound travel through a medium to the ear.         | Sounds can travel through solids, liquids and gases.<br>Sound travels faster in water and loses its energy less rapidly than in air. Sound travels more quickly through solids and liquids than through gases.   |
| Sounds get fainter as the distance from the sound source increases. | When <b>you</b> are standing close to an alarm clock, it seems quite loud. As <b>you</b> move <b>away</b> from the clock, the alarm <b>sounds</b> quieter, so our distance from the <b>source</b> of a <b>sound</b> will affect how loud it seems.   |
| How we can use a scientific enquiry to answer a question.           | Choosing a suitable scientific enquiry., i.e.<br>Observations.<br>Fair testing.<br>Sorting and classifying.<br>Secondary sources.<br>Choosing equipment.<br>Collecting data.<br>Measuring.<br>Recording.<br>Analysing data.<br>Making improvements.  |

## Diagrams and Symbols



## Statutory requirements

### Pupils should be taught to:

- Identify how sounds are made, associating some of them with something vibrating
- Recognise that vibrations from a sound 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.

## What? (Key vocab)

| Spelling   | Definition  |
|------------|---|
| vibrations | Quickly moving back and forth or up and down.           |
| source     | Where something originates or comes from.               |
| pitch      | How high or low a sound is.                             |
| volume     | How loud or quiet something is.                         |
| reflection | How sound or light is thrown back by a surface.         |
| absorption | The process of taking something into another substance. |

## Possible lessons

- Survey – What different sounds can be heard?
- Comparative test – What happens to the sound of the drum when we get further away from it?
- Using a data logger
- Problem-solving – Where in the school would be the best places to put fire alarms?
- Explore – What is a ‘sound’?
- Modelling - How can we represent a sound wave?
- Comparative test – How can we alter the loudness of a sound?
- Explore – How do we change the pitch of a sound?
- Comparative test – How can we alter the loudness of a sound?
- How does the height from which a tube is dropped affect the loudness of the sound produced?
- Does the length of an elastic band affect the pitch of the sound produced?**