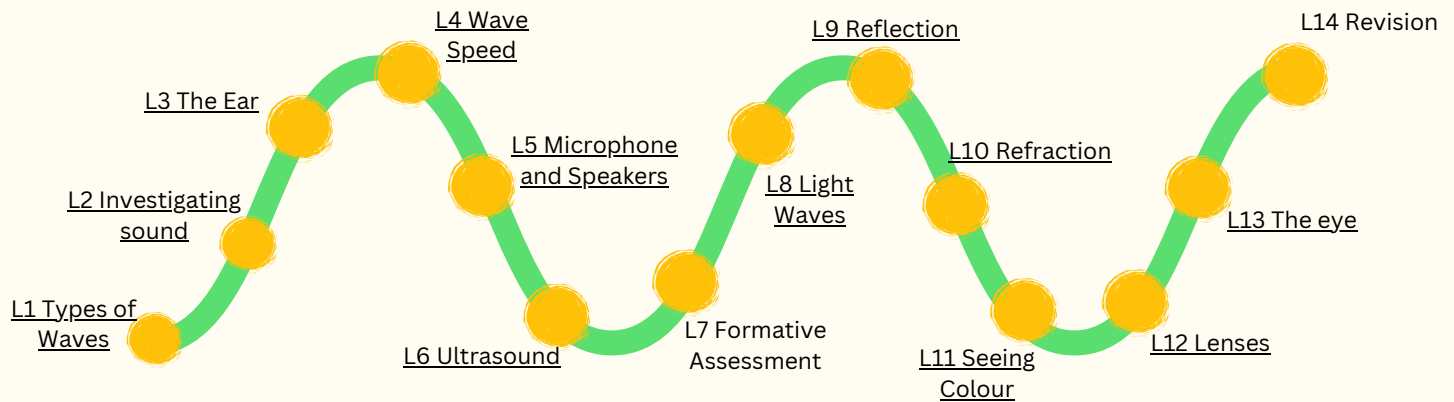


In this unit you will learn:

- The difference between longitudinal and transverse waves, with examples of each.
- Key wave properties, including amplitude, wavelength, frequency, and wave speed.
- How waves can be reflected, refracted, and absorbed when they meet different materials.
- How sound and light waves travel, and how the human ear and eye detect them.



Prior learning link: KS2 Light and Sound

Key words

- **Wave** – A transfer of energy without transferring matter.
- **Transverse wave** – A wave where the vibrations are at right angles to the direction of travel (e.g. light waves, water waves).
- **Longitudinal wave** – A wave where the vibrations are parallel to the direction of travel (e.g. sound waves).
- **Amplitude** – The maximum displacement of a point on a wave from its rest position; relates to the wave's energy.
- **Wavelength** – The distance between two corresponding points on a wave, such as crest to crest.
- **Frequency** – The number of waves passing a point each second, measured in hertz (Hz).
- **Wave speed** – How fast the wave travels, calculated as frequency \times wavelength.
- **Reflection** – When a wave bounces off a surface.
- **Refraction** – When a wave changes direction as it passes from one medium to another.
- **Diffraction** – The spreading out of waves when they pass through a gap or around an obstacle.
- **Absorption** – When a wave's energy is taken in by a material.
- **Compression** – The region in a longitudinal wave where particles are close together.
- **Rarefaction** – The region in a longitudinal wave where particles are spread apart.
- **Electromagnetic spectrum** – The full range of electromagnetic waves, including radio, microwaves, infrared, visible light, ultraviolet, X-rays, and gamma rays.
- **Pitch** – How high or low a sound is, determined by the frequency of the sound wave.

Revision Resources

BBC KS3 Waves