

## Definitions and Concepts for Edexcel Physics GCSE

### Topic 4: Waves

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Definitions in **bold** are for higher tier only

Definitions marked by '\*' are for separate sciences only

**Amplitude:** The maximum displacement of a wave from its undisturbed (equilibrium) position.

**Angle of Incidence:** The angle between the incident ray and normal.

**Angle of Reflection:** The angle between the reflected ray and normal.

**Electromagnetic Waves:** Transverse waves that transfer energy from the source of the waves, to an absorber. They form a continuous spectrum of different frequencies and all travel at the same speed in a vacuum.

**\*Foetal Scanning:** A method of producing an image of a foetus in a womb through the emission, reflection and detection of ultrasound waves.

**Frequency:** The number of waves passing a given point in a second. It is the inverse of the wave's time period.

**Hertz:** The unit of frequency.

**\*Infrasound:** Sound waves that have a frequency lower than the lower limit of human hearing (20Hz).

**Law of Reflection:** The angle of incidence must always equal the angle of reflection when a wave reflects.

**Longitudinal Waves:** Waves with oscillations that are parallel to the direction of travel/energy transfer.

**Reflection:** The bouncing back of a wave at a boundary.

**Refraction:** The changing of speed, and consequently the direction, of a wave as it changes medium. The wavelength of the wave will also change but the frequency remains constant.

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**Seismic Waves:** Waves that are produced by earthquakes.

**\*Sonar:** A method of determining distances in water using the emission, reflection and detection of ultrasound waves.

**Time Period:** The time it takes for one complete wave to pass a given point. It is the inverse of frequency.

**Transverse Waves:** Waves with oscillations that are perpendicular to the direction of travel/energy transfer.

**\*Ultrasound Waves:** Waves that have a frequency higher than the upper limit of human hearing (20kHz).

**Wave Velocity:** The velocity at which energy is transferred through the medium. It is equal to the product of the wave's wavelength and frequency.

**Wave:** A process of energy transfer through oscillations, without medium being transferred with it.

**Wavefront:** An imaginary surface representing points of a wave that are at the same point in their cycle.

**Wavelength:** The distance from a point on one wave to the same point on the adjacent wave (ie. peak to peak or trough to trough).

