Definitions and Concepts for WJEC (Eduqas) Physics GCSE

Topic 5: Waves in Matter

---

*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.

Auditory Nerve: The nerve responsible for transferring the electrical sound signals produced in the cochlea to the brain.

Cochlea: **A fluid filled tube through which sound oscillations travel. Cells in the cochlea convert these vibrations into signals that can then be passed along the auditory nerve.**

Ear Drum: **A thin membrane inside the ear. Sound waves cause it to vibrate which in turn causes the ear bones to oscillate. The eardrum becomes ineffective if it is damaged or too much wax forms on its surface.**

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.

Outer Ear: **The visible part of the ear that collects the sound. It is often referred to as the pinna.**

P-Waves: **Primary waves are a type of longitudinal seismic wave. They can travel through all mediums and travel faster than S-waves.**

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.

Seismic Waves: Waves that are produced by earthquakes.

S-Wave: **Secondary waves are a type of transverse seismic wave. They cannot travel through fluids and travel slower than P-waves.**

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 a 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).