The ability of a material to absorb the energy of wave colliding with it.	Two neutrons and two protons (a 2^+ Helium ion or a Helium nucleus) emitted from unstable nucleus	Maximum displacement of particles/wave within a wave from their normal equilibrium positions	Number of protons in a nucleus
Absorption	**Alpha particle**	**Amplitude**	**Atomic number**
A neutron splits into a proton and an electron & the electron is emitted from unstable nucleus	Total Atomic number remains the same in a nuclear reaction	Total Mass number remains the same in a nuclear reaction	Bending of waves around a barrier/gap (provided barrier/gap is about same as wavelength of wave)
Beta particle	**Conservation of charge**	**Conservation of mass**	**Diffraction**
Refraction in e.g. a prism causes white light to split up into colours	Family of waves (e.g. light) don't require a medium, are transverse and travel at 3×10^8 ms^{-1}	The number of waves passing a point per second $f = \frac{1}{T}$	Release of gamma wave from unstable nucleus (Electromagnetic spectrum)
Dispersion	**Electromagnetic spectrum**	**Frequency**	**Gamma ray**
Time taken for half the radioactive nuclei in a sample to decay	Remove electrons from orbit by collision	Same number of protons, different number of neutrons or same element but different number of neutrons	Wave that oscillates parallel to direction the wave is travelling
Half life	**Ionisation**	**Isotopes**	**Longitudinal Wave**

Intensity of sound (Amplitude of Sound Wave)	Number of protons and neutrons	Substances that can propagate energy waves	Ability of radioactivity to pass through a substance
Loudness	**Mass number**	**Media**	**Penetration**
Time for a wave to undergo one complete oscillation $f = \frac{1}{T}$	Frequency of sound (low pitch = low frequency, high pitch = high frequency)	Deviation of wave e.g. light as the wave speeds up or slows down	The dispersion of white light into its component colours
Period	**Pitch**	**Refraction**	**Spectrum**
Longitudinal wave that requires a medium (travels at 340ms^{-1} in air)	The ability of a material to allow waves to travel through it.	Wave that oscillates at 90° to direction the wave is travelling	When two coherent waves of the same frequency meet
Sound waves	**Transmission**	**Transverse Wave**	**Two point source interference**
The ways in which waves travel. For EMR propagation may occur in a vacuum as well as in a material medium. Sound waves need a	Longitudinal or Transverse Wave	The rate at which an object moves. $v = f\lambda$	Distance between any two corresponding positions on a wave
Wave propagation	**Wave type**	**Wave velocity**	**Wavelength**