KS4: Physics:

Radioactivity

Keyword	Definition
Alpha particle	A particle made of two protons and two neutrons, emitted as ionising radiation from some radioactive isotopes.
Beta particle	A high speed electron, emitted as ionising radiation from some radioactive isotopes.
Gamma ray	A high energy photon, emitted as ionising radiation from some radioactive isotopes.
Nucleon	A particle found in the nucleus (neutron or proton).
Mass number	The number of protons and neutrons in the nucleus of an atom.
Nucleon number	Number of nucleons in the nucleus, another term for mass number.
Atomic number	The number of protons in the nucleus of an atom. Also known as the proton number.
Ion	An atom or group of atoms with an electrical charge due to the gain or loss of electrons
Ionising radiation	Radiation that can cause charged particles (ions) to be formed. It can cause tissue damage and DNA mutations.
Emission spectrum	A set of wavelengths of light or other electromagnetic
Absorption spectrum	A spectrum of light (or other EM radiation) that includes black lines. Caused by some wavelengths being absorbed by the material that the light (or radiation) passes through.
Cosmic rays	Charged particles with a high energy that come from stars, neutron stars, black holes and supernovae.
Geiger-Muller (GM) tube	A device that can detect ionising radiation and is used to measure the activity of a radioactive source.
Decay (radioactive)	When an unstable nucleus changes by giving out ionising radiation to become more stable.
Positron	The anti-particle of an electron, having the same mass but opposite charge. Positron emission is a form of beta decay.
Half-life	The average time taken for half of the radioactive nuclei in a sample of radioactive material to decay.

Radiation	Range (cm)	Ionising power	Stopped by	Electrical field deflection
Alpha	3-5	Highly ionising	Paper	Deflected towards negative plate
Beta	about 15	Ionising	Aluminium	Deflected towards positive plate
Gamma	much longer	Weakly ionising	Lead or Concrete, though some gets through	None

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