**Vocabulary: Half-life**



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* Daughter atom – a stable atom that results from the *decay* of a *radioactive* atom.
* Decay – the process in which a radioactive atom spontaneously releases particles and/or energy.
	+ There are several types of radioactive decay. The most common are alpha, beta, and gamma decay:
		- In *alpha decay*, an alpha particle (2 protons and 2 neutrons) is emitted.
		- In *beta decay*, a beta particle (1 electron) is emitted.
		- In *gamma decay*, gamma rays are emitted.
* Geiger counter – an instrument that detects the particles emitted by decaying atoms.
* Half-life – the time required for one half of the radioactive atoms in a sample to decay.
	+ Each time a half-life passes, the number of radioactive atoms in a sample will be divided in half.
	+ The half-lives of common radioactive substances range from 3.7 minutes (rubidium-77) to 3.6 × 1017 years (zircon-96).
* Isotope – one of several forms of the same element.
	+ All isotopes of a given element have the same number of protons, but differ in the number of neutrons.
	+ Most elements have more than one naturally occurring isotope.
* Neutron – a particle with no charge located in the nucleus of an atom.
	+ Neutrons have slightly more mass than protons.
* Radiation – energy in the form of waves or particles that is emitted from an object and travels through space or through a medium such as air.
* Radioactive – capable of releasing *radiation*.
	+ In a radioactive atom, the nucleus can spontaneously decay and emit particles and/or energy. These emissions are called radiation.
* Radiometric dating – a method of determining the age of materials that is based on measuring the proportions of radioactive atoms and daughter atoms in the material.