

Vocabulary: Half-life



Vocabulary

- 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 3.6×10^{17} 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.