

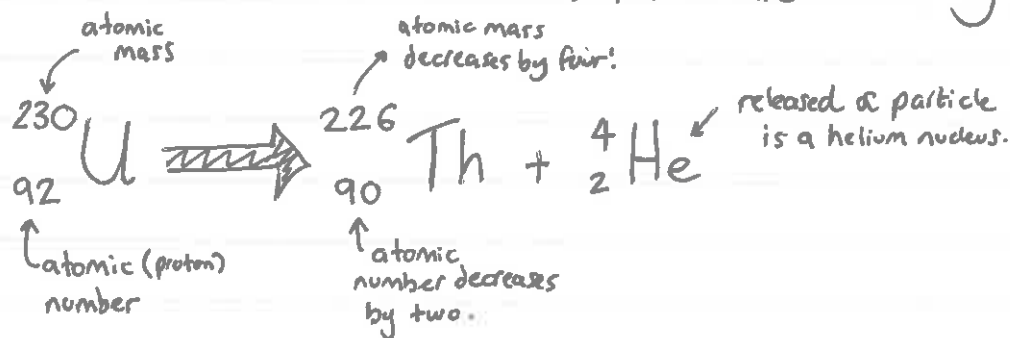
Radioactive Decay

When an unstable nucleus breaks apart, or decays, it produces radiation. Gamma rays are one type and are the highest energy waves in the electromagnetic spectrum. Sometimes a nucleus will release beta radiation, which is a fast moving electron or perhaps even alpha radiation which is made up of two protons and two neutrons, in these cases, because the structure of the nucleus has changed, a new element is formed.

There are two types of decay that create new elements:

Alpha (α) decay: As an α particle contains 2 protons and 2 neutrons we can display it as α^4_2

The alpha particle is formed when an unstable nucleus loses two protons and two neutrons. This decreases the atomic number by two.



Beta (β) decay: A beta particle is formed when a neutron in an unstable nucleus splits into a proton and electron. The proton stays in the nucleus, raising the atomic number by one, while the electron is released.

