Radioactive Decay

Hello. Welcome to this lesson on radioactive decay. In order to understand radioactive decay, we have to understand the stability of a nucleus. So in a nucleus, it is made up of protons and neutrons, which, hopefully, you know that from previous lessons. And together, these protons and neutrons are considered nucleons.

So the graph below shows that only certain ratios of neutrons and protons are stable. So only certain ratios within a nucleus provide a stable nucleus. Unstable nuclei will decay in such a way as to become more stable. So in other words, a nucleus is going to decay until it is stable.

Radioactive decay-- particles that decay spontaneously by emitting energy and charged particles are said to be radioactive. Radiation-- energy and charged particles released by unstable elements. So that's the definition right there of radiation. Any element with an atomic number greater than 83 will decay because it is unstable.

There are three types of radiation. The first type of radiation is alpha radiation, or alpha particles being released. And that is positive electric charge. The alpha particles themselves have a positive electric charge. The second type of radiation is beta decay. And those are particles that have negative electric charge. And then the last type is a gamma decay, which has a neutral electric charge.