

## Radioactivity

### Atoms, elements and isotopes

Atoms are the basic building blocks of matter in the natural world.

An atom is made from a nucleus surrounded by electrons. The nucleus contains particles called protons and neutrons. An element (such as hydrogen, gold or uranium) is a substance where all of its atoms contain the same number of protons, giving it unique chemical properties.

Isotopes are variations of an element which have the same number of protons but different numbers of neutrons. As an example, the two common isotopes of uranium both have 92 protons in their nucleus but different numbers of neutrons: uranium-235 has 143 neutrons and uranium-238 has 146 neutrons.

Different isotopes of the same element will have the same chemical properties but slightly different physical properties, due to the differing number of neutrons in atom's nucleus.

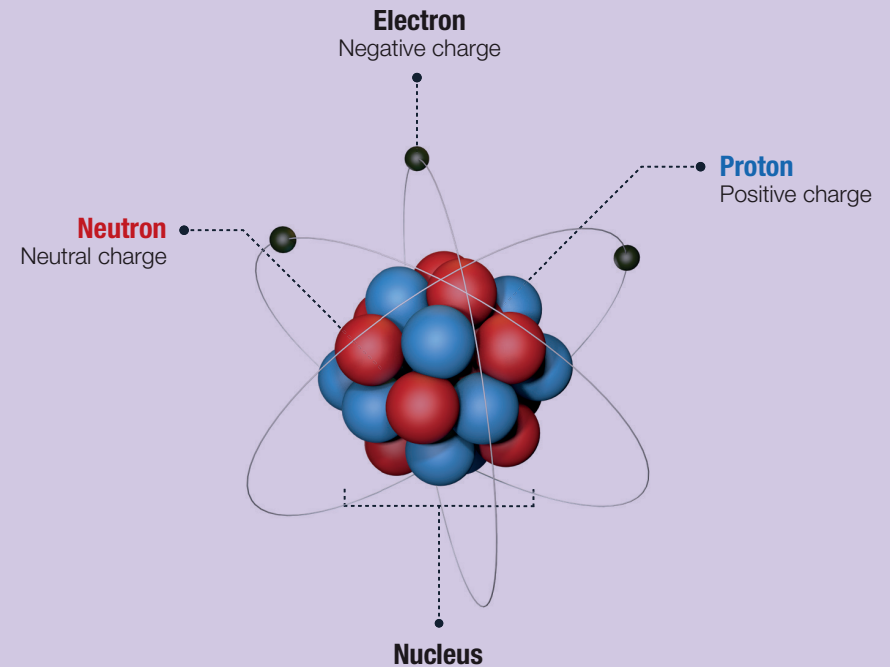


Image: The structure of an atom, with a central nucleus surrounded by electrons