Foxford Learning Plan

KS4

Physics

Atomic structure

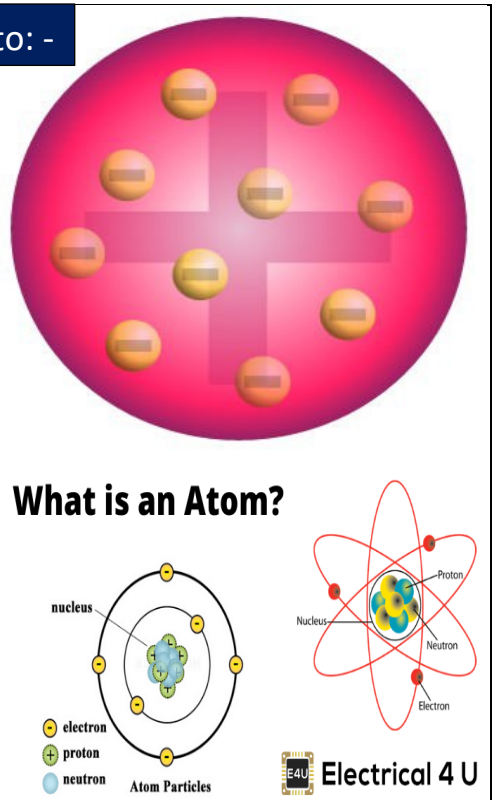
Key Vocabulary

Chemical symbol	The letters on the periodic table that give the name of each element. Every element has its own chemical symbol.
Nucleus	The centre part of an atom that contains the protons and neutrons.
Proton	Sub-atomic particle that makes up the nucleus of an atom. Has a mass of 1 and a charge of +1.
Neutron	Sub-atomic particle that makes up the nucleus of an atom. Has a mass of 1 and a charge of 0.
Electron	Sub-atomic particle found orbiting the nucleus in an electron shell. Has a mass of almost 0 and a charge of -1.
Electron shell	One of the regions outside of the nucleus where electrons can be found.
Electronic structure	A diagram showing how the electrons are arranged in the electron shells. The 1st shell can have a maximum of 2 electrons, the others can hold up to 8 electrons
Isotopes	Versions of the same element with different numbers of neutrons.

Key Skills

Over the course of the topic, I will be able to: -

- Describe the how the atomic number and the mass number can show the number of sub particles in an atom.
- Use comparatives to understand the size of an atom e.g. For comparison, the radius of a typical bacterium is 1×10^{-6} m and the radius of a human hair is about 1×10^{-4} m.
- Calculate the number of protons, electrons and neutrons.
- Draw atomic diagrams showing electronic configurations of at least the first 20 elements of the periodic table.
- Describe and use different models over a historical period of time to establish the current model of the atom.



I will Understand

1. How the current model of the atom came to be.
2. Describe how scientific experimentation led to the nuclear model and were compared.
3. Explain how we can calculate the number of Protons, electrons and neutrons including what happens for Isotopes.
4. Draw the atomic structure of the first 20 elements.