WJEC England GCSE Physics 9.1 - Nuclear Atom and Isotopes

Flashcards

What are the three subatomic constituents of an atom?

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1. Proton
2. Neutron
3. Electron

Where is most of the mass of an atom concentrated?

Where is most of the mass of an atom concentrated?

In the nucleus.

Approximately what proportion of the total radius of an atom is the radius of the nucleus?

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1/10,000

Describe the arrangement of the protons, neutrons and electrons found in an atom.

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- The protons and neutrons are found in the atom's nucleus.
- The electrons are found in discrete energy levels around the nucleus.

What type of charge does the nucleus of an atom have? Why?

What type of charge does the nucleus of an atom have? Why?

- **Positive charge**
- The nucleus contains protons and neutrons
- Protons have a positive charge
- Neutrons have no charge

How does the ratio of electrons to protons in an atom result in the atom having no overall charge?

How does the ratio of electrons to protons in an atom result in the atom having no overall charge?

- The number of protons is equal to the number of electrons.
- Protons and electrons have equal and opposite charges, so charge cancels.

What is identical for all forms of the same element?

What is identical for all forms of the same element?

The number of protons.

What is the name given to the number of protons in an atom?

What is the name given to the number of protons in an atom?

Atomic Number

What is an atom's mass number?

What is an atom's mass number?

The total number of protons and neutrons in the atom.

This is also known as the **nucleon** number.

What is an isotope of an atom?

What is an isotope of an atom?

The form of an element that has a different number of neutrons (so a different mass), but the same number of protons.

How do atoms turn into positive ions?

How do atoms turn into positive ions?

- They lose one or more of their outer electrons.
- Electrons are negatively charged, so negative charge decreases and the resultant charge of the atom is positive.

What may lead to a scientific model being changed or replaced?

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The discovery of new experimental evidence which doesn't agree with the existing theory.

How did the plum-pudding model describe the formation of the atom?

How did the plum-pudding model describe the formation of the atom?

A ball of positive charge, with negatively charged electrons distributed evenly throughout it.

Prior to the discovery of the electron was it believed to be possible to break the atom into smaller constituents?

Prior to the discovery of the electron was it believed to be possible to break the atom into smaller constituents?

No. The atom was believed to be indivisible.

What is the name given to the currently accepted model of the atom?

What is the name given to the currently accepted model of the atom?

The Bohr nuclear model.

What reinforces a scientific theory?

What reinforces a scientific theory?

When experimental results agree with the hypothesised theoretical calculations and theories.