

Atomic Model Notes

An **Atom** is the _____ . It cannot be divided chemically.

Protons: _____

Electrons: _____

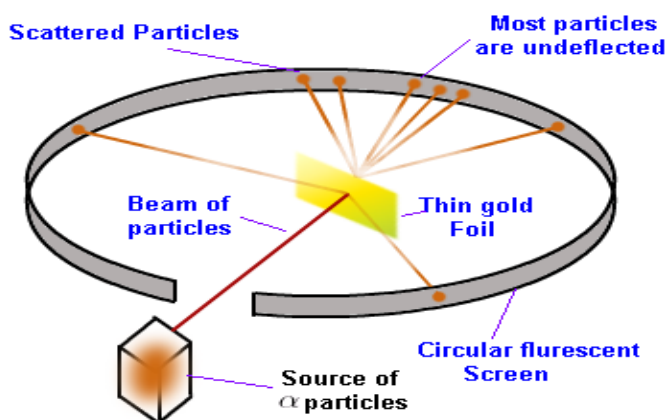
Past Knowledge: an atom is generally in a neutral state. Thus means it has the same amount of protons (p^+) and electrons (e^-).

Atomic model: Model used to demonstrate what particles are in the atom.

Rutherford and the Gold Foil Experiment: 1911

Rutherford used a gold foil experiment to come up with his theories.

- Used radioactive substance and observed how positive (alpha) particles were dispersed



- alpha particles (+ charge) were fired at a piece of gold foil

-Some went through, some bounce back, some get deflected

Observations:

- Most alpha (+) particles _____
- A few hit the gold foil _____
- A few were redirected _____

Conclusions:

- The atom is _____
- The (+) alpha particles must have collided with something since _____
- That "something" was the _____, a _____ charged core

Rutherford's Atomic Model

- The nucleus contains positively (+) charged particles called _____
- An equal number of negatively (-) charged _____
- An atom is generally in a _____. This means it has the same amount of protons (p^+) and electrons (e^-).

The Problem with Rutherford's Model

- We know that opposite charges attract each other.
 - Positive charges in the core should _____
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Bohr's : 1918

Agreed with all of Rutherford's theories except for the placement of the electrons.

- Bohr concluded electrons could occupy _____
- Electrons could move only when energy was applied (heat or electricity)

Rutherford-Bohr Model:

- Look at the atomic #
- Atomic # =
- # of protons =

Electrons were found on orbits which were continually moving.

The orbits can hold a specific number of e^-

1st orbit:

2nd orbit:

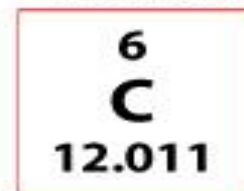
3rd orbit:

4th orbit:

Electrons stick to the orbits because of the speed the orbit is moving at.

Electrons can move from one orbit to another when stimulated by heat or electricity.

Carbon



Practice

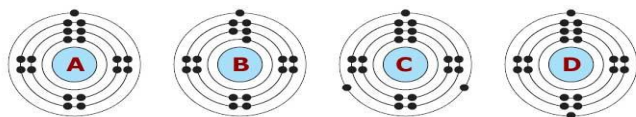
He

B

P

Ca

Which picture is incorrect?



Which elements are represented in the correct pictures?