

Name: _____ Pd. _____ Date: _____

Atoms: Development of the Atomic Theory

Democritus

- 460 BC - Greek philosopher proposes the existence of the _____
 - He pounded materials until he made them into smaller and smaller parts
 - He called them "atoma" which is Greek for "_____".

Democritus's Theory:

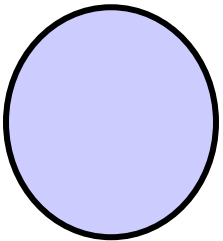
All atoms:

- Are _____, _____ particles
- Are made of a single material formed into different _____ and _____
- Are always _____, and they form different materials by _____.

John Dalton

- 1803 - British chemist
- Elements combine in _____ to form _____.

Dalton's Model:



Solid Sphere Model or _____

Dalton's Theory:

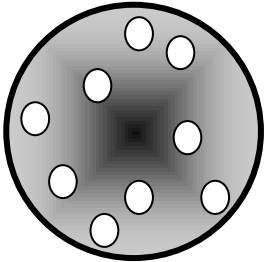
- All substances are made of atoms that cannot be _____, _____, or _____.
- Atoms join with other atoms to make new _____.
- Atoms of the same element are _____, and atoms of different elements are different in _____ and _____.

J.J. Thomson

■ 1897 - English chemist and physicist

■ Discovered _____

Thomson's Model:



_____ Model or
_____ Model

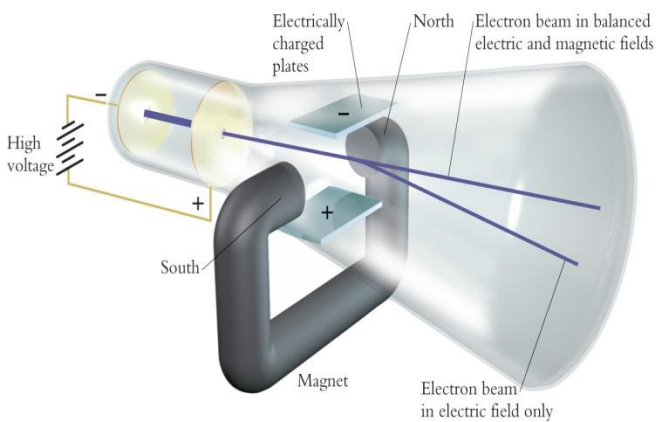
Thomson's Theory:

■ Used _____ to conduct his experiments.

■ Atoms contain negatively charged particles called _____ and positively charged matter.

■ Created a model to describe the atom as a sphere filled with positive matter with negative particles mixed in.

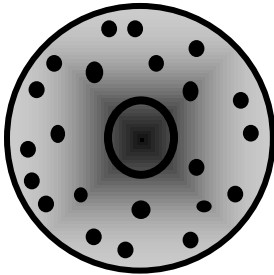
Cathode Ray Tube



Ernest Rutherford

- 1912 - New Zealand physicist
- Discovered the _____

Rutherford's Model:

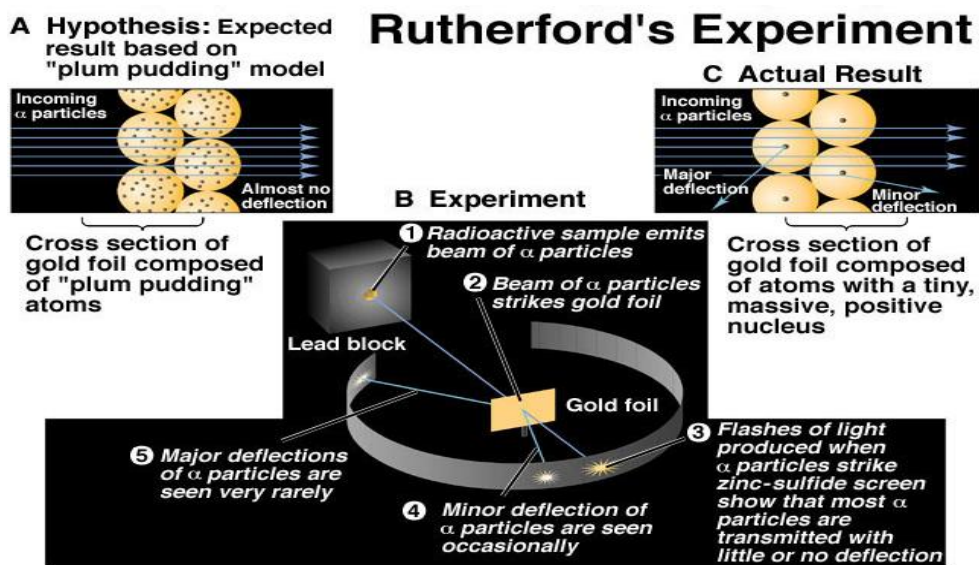


_____ Model

Rutherford's Theory:

- Used _____ for his research.
- Small, dense, positively charged particle present in _____ called a _____.
- _____ travel around the _____, but their exact places cannot be described.

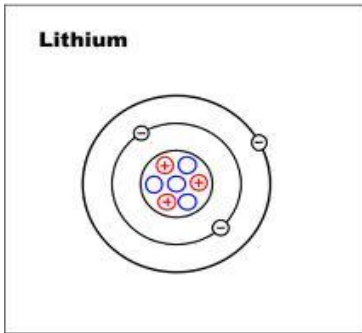
Gold Foil Experiment



Niel's Bohr

- 1913 - Danish physicist
- Discovered _____

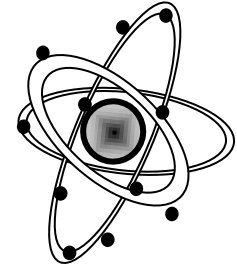
Bohr's Model:



_____ Model

Or

_____ Model

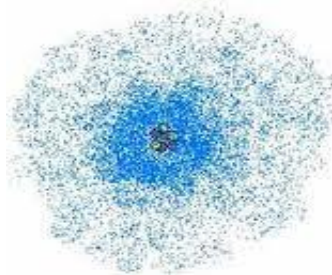


Bohr's Theory:

- _____ travel around the nucleus in _____ and _____.
- Electrons can _____ from one level to a path in another level.

Erwin Shrodinger

- 1924 - Austrian physicist
- Developed the electron cloud model



Shrodinger's Theory:

- The exact path of electrons cannot be predicted.
- The region referred to as the electron cloud, is an area where electrons can likely be found.

Modern Theory of the Atom

- Atoms are composed of three main subatomic particles:
 - A. _____
 - B. _____
 - C. _____
- Most of the mass of the atom is concentrated in the _____ of the atom.
- The _____ and _____ are located within the nucleus, while the _____ exist outside of the nucleus.
- In neutral atoms, the number of protons is equal to the number of _____.
- The type of atom is determined by the number of _____ it has.
- The number of protons in an atom is equal to the _____ number.
- The sum of the number of protons and neutrons in a particular atom is called the _____.
- _____ electrons are the outermost electrons.