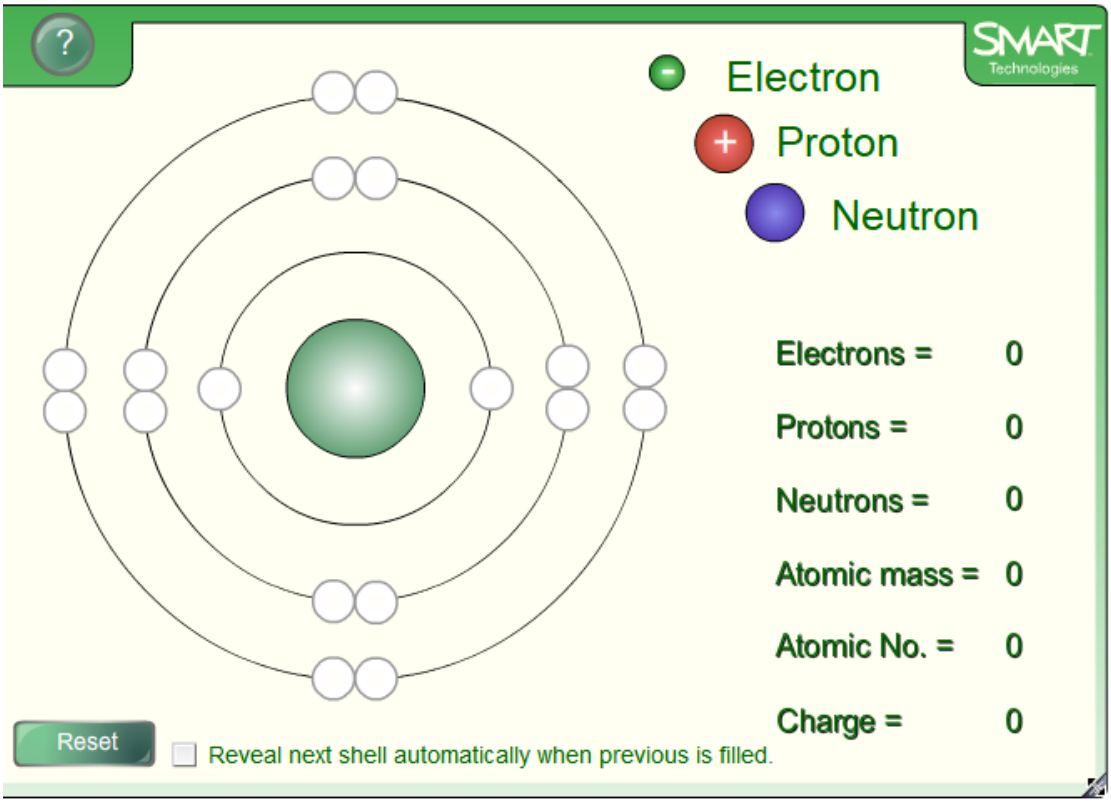
Warm Up

Without looking in your notes, what 3 facts, names or models can you remember about the atomic model of the atom?

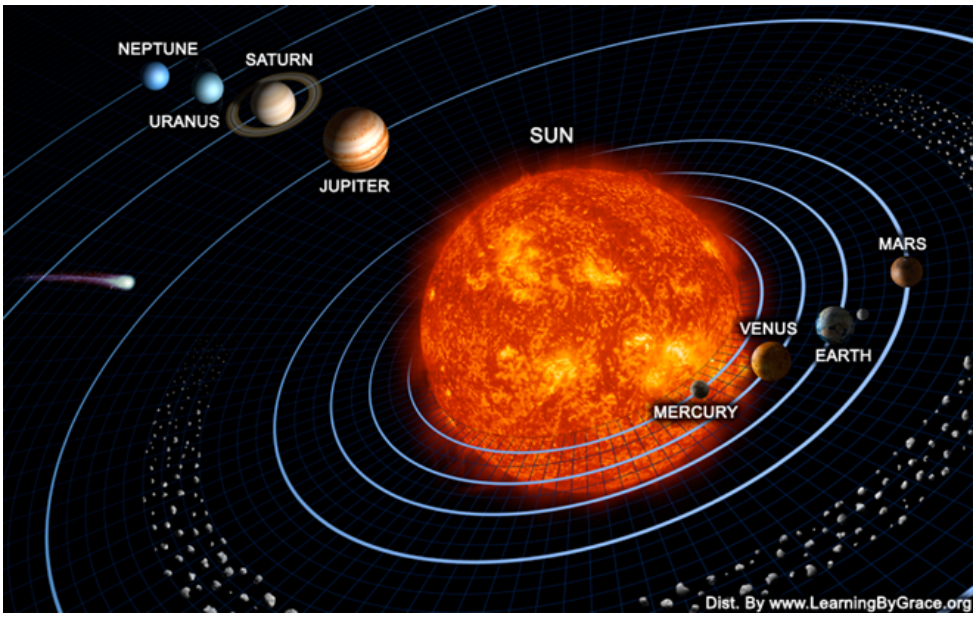
Elements and Atomic Structure

The Bohr-Rutherford model of the atom states that atoms are composed of three subatomic particles: protons, neutrons, and electrons

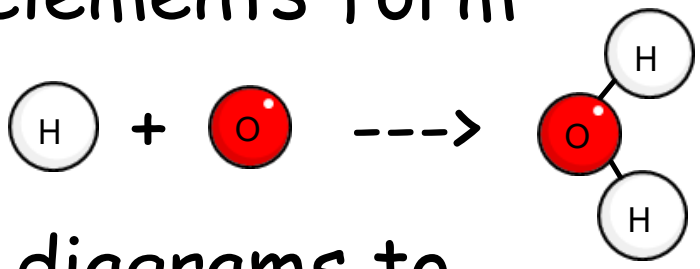
Bohr Diagrams



Bohr Diagrams - A Planetary Model



Bohr diagrams are used to picture how elements form compounds.



We use Bohr diagrams to represent the arrangement of electrons in various orbits.

As the number of electrons increase, so do the amount of orbits for each Bohr diagram. There is actually a set amount of electrons allowed in each orbit before it is "filled"

Example:Bohr diagram for Lithium

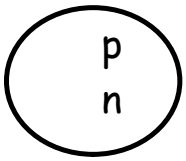
Step 1: Find the number of protons, neutrons, and electrons

protons -

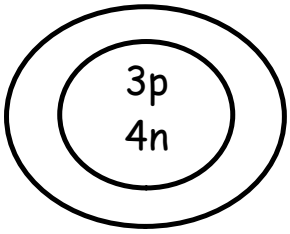
neutrons -

electrons -

Step 2 - Draw your nucleus and include in there the number of protons and neutrons for your elements

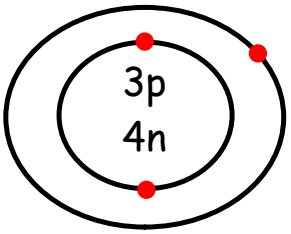


Step 3 - Place your electrons on the orbits as "dots". Remember that the first shell can only hold 2 electrons, while the second and third can both hold 8 electrons.



Step 4 - Include proper atomic notation beside the diagram.

$^{7}_{3}Li$



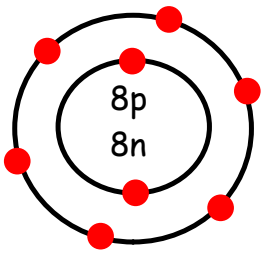
PRACTICE!! 

Draw proper Bohr diagrams for the following elements:

(a) berylium
(b) oxygen
(c) neon
(d) sodium
(e) potassium
(f) boron
(g) flourine
(h) sulfur
(i) argon
(j) calcium

An ion is a charged atom. Ions are formed when atoms gain or lose electrons.

When orbits have outer shells that are not full (or half-way)



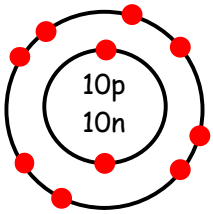
$^{16}_{8}O$

They have a tendency to want to fill or empty that outer level.

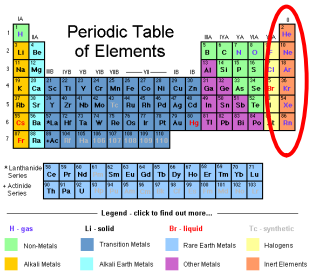
If the element loses electrons, it would become more positive.

If the element gains electrons, it would become more negative.

The noble gases dont like to react as much because they are chemically stable.



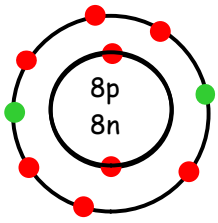
$^{20}_{10}Ne$



Ionic charges are assigned to an unstable element to indicate how many electrons were gained or lost.

Ex. O^{2-}, N^{3-}, Be^{2+}, Ne

The stable Bohr diagram represents one of the noble gases.



O^{2-}

Which one?

We would say the "Isoelectronic Noble Gas" for Oxygen would be

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