Name:

Science 9
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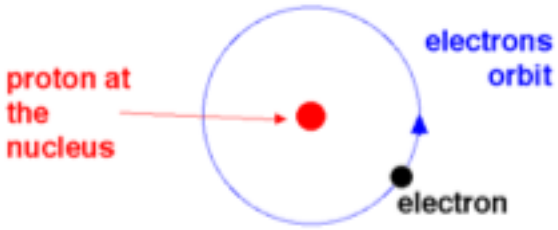
Bohr Model of the Atom

Block:



Valence Electrons

- Each orbit of "shell" can hold a certain amount of electrons (see table below)
- Electron shells fill from the inside out; the first shell must be filled before you can add electrons to the second, and so on
- The electrons in the outermost shell are called **valence electrons**
- The shell containing electrons furthers from the nucleus is called the **valence shell**
- Noble gases have a full valence shell and are considered **stable** (makes them unreactive)
- All other elements have partially filled valence shells and are considered **unstable** (makes them reactive because they will tend to either gain or lose electrons to achieve a full outermost shell)

Shell	Number of Electrons
1	2
2	8
3	8
4	18
5	18
6	32
7	32

How to Draw Bohr Diagrams

1. Find the element on the periodic table.

2. Draw the nucleus.

3. In the nucleus, write…
   i. the number of protons (atomic number)
   ii. the number of neutrons (mass number - atomic number)

4. Determine the number of electrons (for an atom, the charge is zero so the number of electrons equals the number of protons)

5. Find out which period the element is in.
   - Elements in period 1 have one energy level
   - Elements in period 2 have two energy levels, and so on.

6. Add electrons from the inside out, filling each level before going on to the next. Electrons should be drawn in pairs.