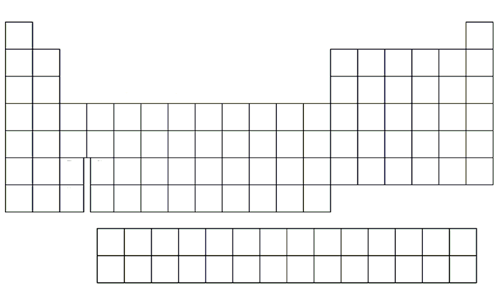
Section 5.5

Elements and the Periodic table

View the power point in class.

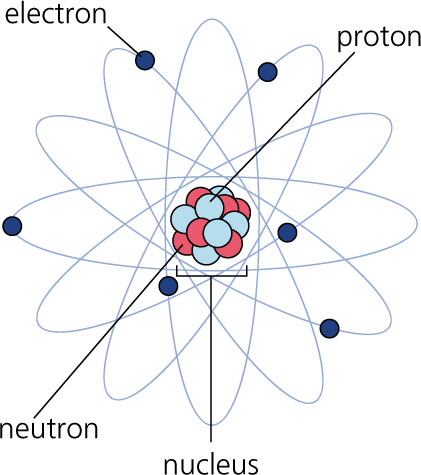


Use your periodic table from the student agenda to fill in the appropriate spaces

The Periodic Table – is a structured arrangement of elements that help us to explain and predict physical and chemical properties.

Chemical Families – are groups of elements in the same column they tend to have similar:

1. Physical properties
2. Chemicla properties
3. Are grouped in locations metals on the left and gasses on the right.
4. Groups include:
   1. Alkali metals
   2. Alkaline earth metals
   3. Noble gases
   4. Halogens



Elements and Atomic Stucture – learn how to diagram the **Bohr-Rutherford** model of atomic sturcture.

Atoms are made of :

1. Protons – positively charged
2. Neutrons – neutral particles
3. Electrons – negatively chraged

Bohr Diagrams:

1. Consist of a nucleus with orbits or shells around the nucleus.
2. The nucleus is made of neutrons and protons
3. The orbits hold electrons.
4. Electrons and protons are equal in number
5. The outside orbit of electrons is called the Valence.

**Bohr Diagrams and Standard Atomic Notation**:

4020 Ca

40 – mass number - number of protons + neutrons

20 – atomic number – number of protons

If these numbers are subtracted then the number of neutrons are found

The Bohr diagrams places the number of neutrons and protons in the center and electrons in energy rings around the outside. Each energy ring has a maximum number it can hold

                     Ring 1 – 2 electrons

                     Ring 2 – 8 electrons

                     Ring 3 – 8 electrons

                     Ring 4 – 18 electrons

                     Ring 5 – 18 electrons

                     Ring 6 – 32 electrons

                     Ring 7 – 32 electrons

The electrons in the outer most energy ring are called valence electrons. These electrons are very important because they are involved in chemical reactions. They can be lost or gained so that the element will have 8 electrons in the outer most ring and become stable. The noble gases already have 8 electrons in their outer ring so they are stable and do not react readily

When atoms lose electrons they become positively charged and are called cations

When atoms gain electrons they become negatively charged and are called anions

<http://videos.howstuffworks.com/hsw/5808-atomic-structure-atomic-number-video.htm>

<http://www.zerobio.com/drag_gr9/bohr/bohr.htm>

Practice:

<http://www.chempractice.com/drills/java_Bohr.php>

Work Sheets completed in class or for homework.

Additional resources:

<http://www.slideshare.net/profpaul/bohr-diagrams>