**Standard 1: The periodic table is systematically arranged into columns and rows of elements that have particular characteristics in common.**

1. What property is the periodic table arranged by? What are the rows and columns of the periodic table called?
2. How many valence electrons does P have?
3. What causes the elements in the same group to have the same properties?
4. Which of the following would have the most similar properties: Ni, Zn, Hg, and Ga? Explain why.
5. What are the names, locations, and properties for each of the five main element groups (ex: halogens)?

**Standard 2: The periodic table is sectioned into 3 types of elements: metals, nonmetals and metalloids**

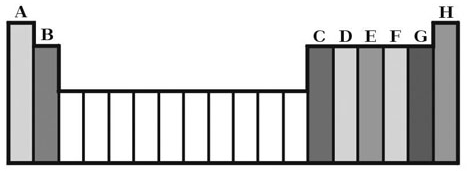
1. What are three types of elements? How can you tell what type an element is based off the periodic table? What properties does each type have?
2. An element has the following properties: dull, brittle and a poor conductor of electricity. Would it be a metal, nonmetal, or metalloid?
3. Identify the type of element for each of the following: W, Si, and N

**Standard 3: The elements on the periodic table are arranged so that certain properties increase or decrease as you go across or down the periodic table.**

1. Describe all three periodic trends as they go across and down the periodic table.
2. Oxygen has a high electronegativity and ionization energy. What does that mean in terms of atomic structure, attractions, and electrons?
3. Which of the following elements would have the largest atomic radius Ag, Hg, Be, and P?
4. Which of the following elements would have the lowest ionization energy Y, Ba, Co, or S?
5. Which of the following elements would have the highest electronegativity Mn, C, Al, Se, F?
6. ***Explain why (do not simply state the trend)*** the trend works the way it does for each of the following:
   1. Se has a larger ionization energy than Po
   2. Br has a smaller radius than Sc
   3. As has a smaller electronegativity than N

**Standard 4: Ion formation is a result of an atom gaining or losing valence electrons.**

1. Define ion, cation, and anion.
2. What is the octet rule? Explain how metals and nonmetals fulfill the octet rule.
3. How would Ba fulfill the octet rule? How would it be different for O?
4. Label the charges for each column on the following periodic table:



1. Draw Lewis Dot Symbol for the following:
   1. F
   2. Ca