Periodic Table Basics Name _____

1. Which elements had complete outer shells? Give the name and symbol for each.

_____ _____ _____ _____ _____ _____

2. What do you notice about the location of the elements in #1?

3. Which elements had only one valence electron?

_____ _____ _____ _____ _____ _____

4. What do you notice about the location of the elements in #3?

5. What do you notice about the number of valence electrons as you move from **left** to **right** across a *row or period* in the periodic table? (Na ➔ Mg ➔ Al ➔ Si ➔ P ➔ S ➔ Cl ➔ Ar)

6. What do you notice about the number of energy levels or shells as you move **down** a *group or colum*n in the periodic table? (H ➔ Li ➔Na)

7. Elements are organized into **families** according to their physical and chemical properties. Identify the elements that you used in Step 5 that belong to each family based on the number of valence electrons. Give the name and symbol for each element.

Alkali Metals - 1 valence electron _____ _____ & _____ _____

Alkaline Earth Metals - 2 valence electrons _____ _____ & _____ _____

Boron Family - 3 valence electrons _____ _____ & _____ _____

Carbon Family - 4 valence electrons _____ _____ & _____ _____

Nitrogen Family - 5 valence electrons _____ _____ & _____ _____

Oxygen Family - 6 valence electrons _____ _____ & _____ _____

Halogen Gases - 7 valence electrons _____ _____ & _____ _____

Noble Gases - Complete outermost shell_____ _____, _____ _____, & _____ _____

8. What do you notice about the location of the elements in each ***family***?

9. **Inert** gases have a full outmost shell so they don't react because they don't need to gain or lose valence electrons. Which family would be considered inert?

10. Halogen gases like to react with other elements so they can have a full outer shell. How many valence electrons do they need to gain to have a full outer shell?

11. What do you notice about the locations of the metals and the non-metals on your periodic table? Which element seems to be the exceptions to this rule?