

# Periodic Trends Worksheet

Name: \_\_\_\_\_ Grade: \_\_\_\_\_ ID: \_\_\_\_\_

**Directions:** Use your notes to answer the following questions.

- 1 Rank the following elements by increasing atomic radius: carbon, aluminum, oxygen, potassium.

**Ans:** O, C, Al, K

- 2 Rank the following elements by increasing electronegativity: sulfur, oxygen, neon, aluminum.

**Ans:** Ne, Al, S, O

- 3 Why does fluorine have a higher ionization energy than iodine?

**Ans:** Fluorine has a smaller atomic radius, so the proton can exert a greater pull on electron (Valence shell is close)

- 4 Why do elements in the same family generally have similar properties?

**Ans:** They have the same valence shell electron arrangement.

- 5 Indicate whether the following properties increase or decrease from left to right across the periodic table.

- a. atomic radius (excluding noble gases) **Decrease**
- b. first ionization energy **Increase**
- c. electronegativity **Increase**

- 6 What trend in atomic radius occurs across the periodic table? What causes this trend?

**Ans:** Atomic radius increases down a group because energy levels (shells) are added.

- 7 What trend in ionization energy occurs across a period on the periodic table? What causes this trend?

**Ans:** Ionization energy increases across a period because as elements become less metallic, it requires more energy to remove an electron.

- 8 Circle the atom in each pair that has the largest radius.

a. Al or B

d. O or F

b. Na or Al

e. Br or Cl

c. S or O

f. Mg or Ca

