

Name: _____ Date: _____ Block: _____

Periodic Trends Worksheet

1. Discuss the importance of Mendeleev's periodic law.

2. Identify each element as a metal, metalloid, or nonmetal:

- a. Fluorine _____
- b. Germanium _____
- c. Zinc _____
- d. Phosphorous _____
- e. Lithium _____

3. Give two examples of elements for each category:

- a. Noble gases _____
- b. Halogens _____
- c. Alkali Metal _____
- d. Alkali Earth _____

4. What trend in atomic radius do you see as you go down a group/family on the periodic table?

5. What trend in atomic radius do you see as you go across a period/row on the periodic table? What causes this trend?

6. Circle the atom in each pair that has the largest atomic radius.

- a. Al B c. S O e. Br Cl
- b. Na Al d. O F f. Mg Ca

7. Define ionization energy:

8. Is it easier to form a positive ion with an element that has a high ionization energy or an element that has a low ionization energy? Explain.

9. What trend in ionization energy do you see as you go down a group/family on the periodic table? What causes this trend?

10. What trend in ionization energy do you see as you go across a period/row on the periodic table? What causes this trend?

11. Circle the atom in each pair that has the greater ionization energy.

- | | | | | | |
|-------|----|-------|----|-------|----|
| a. Li | Be | c. Na | K | e. Cl | Si |
| b. Ca | Ba | d. P | Ar | f. Li | K |

12. Define electronegativity:

13. What trend in electronegativity do you see as you go down a group/family on the periodic table? What causes this trend?

14. Rank the atoms from smallest to largest atomic radius:

- | | |
|--------------|-------|
| a. Li, C, F | _____ |
| b. Li, Na, K | _____ |
| c. Ge, P, O | _____ |

15. Rank the ions from smallest to largest for ionic radius:

- | | |
|--------------------------------------|-------|
| a. Mg^{2+} , Si^{4-} , S^{2-} | _____ |
| b. F^- , Cl^- , Br^- | _____ |
| c. Ba^{2+} , Cu^{2+} , Zn^{2+} | _____ |

16. Rank the atoms from lowest to highest in terms of ionization energy:

- | | |
|---------------|-------|
| a. Mg, Si, S | _____ |
| b. F, Cl, Br | _____ |
| c. Ba, Cu, Ne | _____ |

17. Rank the atoms from lowest to highest electronegativity:

a. Li, C, N

b. C, O, Ne

c. K, Mg, P

18. What is the difference between electron affinity and ionization energy?

19. Why does fluorine have a higher ionization energy than iodine?

