

# Periodic Trends Worksheet

Using the periodic table and your knowledge of periodic trends, answer the following questions:

- 1 Circle the best answer that has the:
- |   |                            |    |    |    |    |    |
|---|----------------------------|----|----|----|----|----|
| a | smallest electron affinity | N  | P  | As | Sb | Bi |
| b | largest electronegativity  | Ga | Ge | As | Sc |    |
| c | largest ionization energy  | O  | S  | Sc | Te | Po |
| d | lowest ionization energy   | O  | S  | Se | Te | Po |
| e | smallest atomic radius     | F  | Cl | Br | I  | At |
| f | largest atomic radius      | Li | Na | K  | Rb | Cs |
- 2 Low ionization energy is a characteristic of a \_\_\_\_\_
- 3 What does atomic radius measure? \_\_\_\_\_
- 4 Describe the change in the atomic size across a period and down a group.
- 5 Which element has the largest atomic radius? \_\_\_\_\_
- 6 Explain the main difference between metals and nonmetals.
- 7 Determine if the listed pairs of elements have similar or different properties.
- |   |                      |   |                    |
|---|----------------------|---|--------------------|
| a | Potassium & Rubidium | b | Calcium & Barium   |
| c | Sodium & Chlorine    | d | Helium & Krypton   |
| e | Phosphorus & Oxygen  | f | Lithium & Fluorine |
- 8 Which element has the largest electronegativity? \_\_\_\_\_
- 9 Which group (name) would have the lowest ionization energies?  
\_\_\_\_\_
- 10 Which group (name) has the highest ionization energies?  
\_\_\_\_\_

# Periodic Trends Worksheet

## Answers

1 Circle the best answer that has the:

- |   |                            |    |    |    |    |    |
|---|----------------------------|----|----|----|----|----|
| a | smallest electron affinity | N  | P  | As | Sb | Bi |
| b | largest electronegativity  | Ga | Ge | As | Sc |    |
| c | largest ionization energy  | O  | S  | Sc | Te | Po |
| d | lowest ionization energy   | O  | S  | Se | Te | Po |
| e | smallest atomic radius     | F  | Cl | Br | I  | At |
| f | largest atomic radius      | Li | Na | K  | Rb | Cs |

2 Low ionization energy is a characteristic of a Metal

3 What does atomic radius measure? Size of the atom

4 Describe the change in the atomic size across a period and down a group.

Across a period, the atomic size decreases. Down a group, the atomic size increases.

5 Which element has the largest atomic radius? Francium

6 Explain the main difference between metals and nonmetals.

Metals – low ionization energy, low electron affinity, low electronegativity, loses electrons, ductile, and malleable

Nonmetals- high ionization energy, high electron affinity, high electronegativity, gains electrons, brittle, and insulator

7 Determine if the listed pairs of elements have similar or different properties.

- |   |                      |           |   |                    |           |
|---|----------------------|-----------|---|--------------------|-----------|
| a | Potassium & Rubidium | similar   | b | Calcium & Barium   | similar   |
| c | Sodium & Chlorine    | different | d | Helium & Krypton   | similar   |
| e | Phosphorus & Oxygen  | different | f | Lithium & Fluorine | different |

8 Which element has the largest electronegativity? Fluorine

9 Which group (name) would have the lowest ionization energies?

Group 1 (Alkali metals)

10 Which group (name) has the highest ionization energies?

Group 18 (Noble gases)