

# Trends in the Periodic Table Worksheet

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Use your knowledge of the periodic table trends to answer the following question.

- 1 Why does fluorine has high ionization energy than iodine?
  
- 2 Why do elements in the same group have the same properties?
  
- 3 What characteristics do metalloids have?
  
- 4 Why do atoms get smaller as you move from left to right in the periodic table?
  
  
- 5 Which is the smallest atom in Group 15 (VA or 5A)? \_\_\_\_\_
- 6 Which is the smallest atom in Period 4? \_\_\_\_\_
- 7 Which is the smallest atom in Group 11 (IB or 1B)? \_\_\_\_\_
- 8 Which is the largest atom in Period 2? \_\_\_\_\_
- 9 Indicate whether the following properties increase or decrease from left to right of the periodic table.
  - a Atomic radius (exclude noble gases): \_\_\_\_\_
  - b First ionization energy: \_\_\_\_\_
  - c Electronegativity: \_\_\_\_\_
- 10 Provide the element name and chemical symbol.
  - a Period 5, Group 6 (VIB or 6B): \_\_\_\_\_
  - b Period 6, Group 1 (IA or 1A): \_\_\_\_\_
  - c Period 4, Group 7 (VII B or 7B): \_\_\_\_\_
  - d Period 4, Group 14 (IV A or 4A): \_\_\_\_\_
  - e Period 2, Group 10 (IIA or 2A): \_\_\_\_\_
  - f Period 5, Group 18 (VIII A or 8A): \_\_\_\_\_

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## Answers

- 1 Why does fluorine has high ionization energy than iodine?

Fluorine is a smaller atom than iodine. The valence electrons in fluorine are held tightly by the nucleus. Therefore, it is challenging to remove an electron from the atom.

- 2 Why do elements in the same group have the same properties?

Because they have the same number of valence electrons.

- 3 What characteristics do metalloids have?

Metalloids have characteristics between that of metal and nonmetals.

- 4 Why do atoms get smaller as you move from left to right in the periodic table?

Because as we go from left to right, the number of protons increases, increasing the attractive force between the nucleus and the valence electrons. As a result, the outer electrons are held closer to the nucleus.

- 5 Which is the smallest atom in Group 15 (VA or 5A)? Nitrogen (N)

- 6 Which is the smallest atom in Period 4? Krypton (Kr)

- 7 Which is the smallest atom in Group 11 (IB or 1B)? Copper (Cu)

- 8 Which is the largest atom in Period 2? Lithium (Li)

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

a Atomic radius (exclude noble gases): decreases

b First ionization energy: increases

c Electronegativity: increases

- 10 Provide the element name and chemical symbol.

a Period 5, Group 6 (VIB or 6B): Molybdenum (Mo)

b Period 6, Group 1 (IA or 1A): Cesium (Cs)

c Period 4, Group 7 (VII B or 7B): Manganese (Mn)

d Period 4, Group 14 (IV A or 4A): Germanium (Ge)

e Period 2, Group 10 (IIA or 2A): Boron (B)

f Period 5, Group 18 (VIII A or 8A): Xenon (Xe)