

# Periodic Trends Practice Worksheet

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

- ① Identify each element as metal, nonmetal, or metalloid.
  - a) Fluorine
  - b) Germanium
  - c) Zinc
  - d) Phosphorous
  - e) Lithium
  - f) Selenium
- ② Give two example elements for each category.
  - a) Noble gases
  - b) Halogens
  - c) Alkali metals
  - d) Alkaline earth metals
  - e) Transition metals
  - f) Post-transition metals
- ③ What is ionization energy? What is first ionization energy?
- ④ What is the periodic trend for first ionization energy?
- ⑤ What is the periodic trend for electronegativity?
- ⑥ Is it easier to form a positive ion with an element with high or low ionization energy? Explain
- ⑦ Which is the largest atom in Group 4A? \_\_\_\_\_
- ⑧ Which is the smallest atom in Group 7A? \_\_\_\_\_
- ⑨ Which is the smallest atom in Period 5? \_\_\_\_\_
- ⑩ Arrange the following atoms in order of decreasing atomic radius. Na Al P Cl Mg

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## Answers

① Identify each element as metal, nonmetal, or metalloid.

- (a) Fluorine **Nonmetal**      (b) Germanium **Metalloid**      (c) Zinc **Metal**  
(d) Phosphorous **Nonmetal**      (e) Lithium **Metal**      (f) Selenium **Nonmetal**

② Give two example elements for each category.

- (a) Noble gases **Helium and Argon**  
(b) Halogens **Fluorine and Chlorine**  
(c) Alkali metals **Lithium and Sodium**  
(d) Alkaline earth metals **Beryllium and magnesium**  
(e) Transition metals **Zinc and Nickel**  
(f) Post-transition metals **Aluminum and Titanium**

③ What is ionization energy? What is first ionization energy?

**Ionization energy is the amount of energy needed to remove an electron from an atom. First ionization energy is the energy required to remove an electron from the valence shell of an atom.**

④ What is the periodic trend for first ionization energy?

**It increases from left to right across a period and decreases from top to bottom down a group.**

⑤ What is the periodic trend for electronegativity?

**It increases from left to right across a period and decreases from top to bottom down a group.**

⑥ Is it easier to form a positive ion with an element with high or low ionization energy? Explain

**It would be easier to form an ion with an element with low ionization energy because less energy is required to remove the electron.**

⑦ Which is the largest atom in Group 4A? Lead

⑧ Which is the smallest atom in Group 7A? Fluorine

⑨ Which is the smallest atom in Period 5? Xenon

⑩ Arrange the following atoms in order of decreasing atomic radius. Na Al P Cl Mg

**Na > Mg > Al > P > Cl**