

Periodic Trend Worksheet

Periodic Trend Worksheet

Disclaimer: *The periodic trend worksheet was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.*

Part 1: Building a Foundation

What is the general trend for atomic radius across a period in the periodic table?

Hint: Consider how atomic size changes as you move from left to right.

- A) Increases from left to right
- B) Decreases from left to right
- C) Remains constant
- D) Increases and then decreases

Which of the following factors affect the atomic radius of an element? (Select all that apply)

Hint: Think about the properties of protons, electrons, and their arrangement.

- A) Number of protons
- B) Number of electron shells
- C) Electronegativity
- D) Ionization energy

Define ionization energy and explain why it generally increases across a period.

Hint: Consider the relationship between atomic structure and energy required to remove an electron.

List the periodic trends that typically increase from left to right across a period.

Hint: Think about properties that change as you move across the periodic table.

1. Electronegativity

2. Ionization energy

3. Electron affinity

Which element is likely to have the highest electronegativity?

Hint: Consider the elements in the top right corner of the periodic table.

- A) Fluorine
- B) Oxygen
- C) Nitrogen
- D) Carbon

Part 2: Application and Analysis

Predict which element would have a larger atomic radius: Sodium (Na) or Potassium (K)? Explain your reasoning.

Hint: Consider the position of these elements in the periodic table.

- A) Sodium
- B) Potassium
- C) Both have the same atomic radius
- D) Cannot be determined

Given the elements Oxygen (O), Sulfur (S), and Selenium (Se), arrange them in order of increasing electronegativity and justify your arrangement.

Hint: Think about the positions of these elements in the periodic table.

Analyze the following statement: "The reactivity of nonmetals increases across a period." Which factors contribute to this trend? (Select all that apply)

Hint: Consider how atomic structure influences reactivity.

- A) Increase in atomic radius
- B) Increase in electronegativity
- C) Increase in ionization energy
- D) Decrease in electron affinity

Compare and contrast the trends in electron affinity and ionization energy across a period. Provide examples to support your analysis.

Hint: Think about how these two properties relate to atomic structure.

Part 3: Evaluation and Creation

Evaluate the following elements: Fluorine (F), Chlorine (Cl), and Bromine (Br). Which element would you expect to have the highest reactivity and why? (Select all that apply)

Hint: Consider the halogens and their positions in the periodic table.

- A) Fluorine
- B) Chlorine
- C) Bromine
- D) Reactivity is the same for all

Design an experiment to demonstrate the trend in metallic character across a period. Describe the materials, procedure, and expected results.

Hint: Think about how you can illustrate the change in metallic character with a practical demonstration.

Based on periodic trends, which element would you predict to be the most reactive metal?

Hint: Consider the alkali metals and their positions in the periodic table.

- A) Lithium (Li)
- B) Sodium (Na)
- C) Potassium (K)
- D) Rubidium (Rb)