What is the Periodic Table?

Worksheet

The periodic table organizes elements into rows (periods) and columns (groups) by atomic number and electron configuration, so elements in the same group share similar chemical properties.

Questions

1. Elements in the same column of the periodic table are called

A) Periods
B) Isotopes
C) Groups
D) Compounds

2. How does atomic radius trend across a period (left to right)?

A) Increases
B) Decreases
C) Stays constant
D) Random

3. Which group contains the noble gases?

A) Group 1
B) Group 17
C) Group 18
D) Group 2

4. Elements are arranged in the modern periodic table by

A) Atomic mass only
B) Alphabetical order
C) Increasing atomic number
D) Color

5. Which element is in Group 1, Period 3 of the periodic table, and what does that tell you?

6. Compare the reactivity of fluorine (Group 17) and neon (Group 18).

7. Which has a larger atomic radius: chlorine (Cl) or sodium (Na), both in Period 3?

8. Define: What is a group in the periodic table?

9. Define: What is a period in the periodic table?

10. Define: How does atomic radius change across a period?

Answer Key

1. C) Groups - A column is called a group (or family).

2. B) Decreases - Increasing nuclear charge pulls electrons in, shrinking atomic radius.

3. C) Group 18 - Group 18 elements (He, Ne, Ar) have full valence shells and are largely unreactive.

4. C) Increasing atomic number - The modern table is ordered by increasing atomic number (proton count).

5. Group 1, Period 3 Sodium (Na) Group 1 means 1 valence electron highly reactive metal Period 3 means 3 electron shells

6. Fluorine (Group 17): 7 valence electrons needs 1 more to fill its shell very reactive nonmetal Neon (Group 18): 8 valence electrons full outer shell inert, virtually unreactive

7. Across a period, atomic radius decreases left to right as nuclear charge increases Sodium is far left (Group 1), chlorine is far right (Group 17) Sodium (186 pm) has the larger radius vs. chlorine (99 pm)

8. A vertical column; elements in a group share the same number of valence electrons and similar chemical behavior.

9. A horizontal row; elements in a period have the same number of electron shells.

10. It generally decreases left to right as increasing nuclear charge pulls electrons closer.