

THE PERIODIC TABLE

Key Concepts

- The periodic table organizes elements based on their properties.
- Elements are arranged by increasing atomic number.
- Groups are vertical columns; periods are horizontal rows.

The Periodic Table of the Elements

The periodic table is organized into groups (vertical columns) and periods (horizontal rows). The groups are labeled at the top: 1 IA 1A, 2 IIA 2A, 3-10 IIB-VIII, 11 IB 1B, 12 IIB 2B, 13 IIIA 3A, 14 IVA 4A, 15 VA 5A, 16 VIA 6A, 17 VIIA 7A, 18 VIIIA 8A. The periods are labeled on the left: 1, 2, 3, 4, 5, 6, 7. A legend at the bottom identifies element categories: Alkali metals (red), Alkaline earth metals (orange), Other metals (yellow), Transition metals (green), Lanthanides (light green), Actinides (dark green), Other non-metals (light blue), Halogens (purple), and Noble gases (dark blue). A callout box for Hydrogen (H) shows its atomic number (1), atomic mass (1.00794), and physical properties: solid, colorless, and odorless.

Key Facts to Remember

- Metals are on the left side of the periodic table and are generally good conductors of heat and electricity, malleable, ductile, and shiny.
- Non-metals are on the right side of the periodic table and are typically poor conductors of heat and electricity, brittle, and dull in appearance.
- Group 1 elements (alkali metals) are highly reactive and increase in reactivity as you move down the group.
- Group 18 elements (noble gases) are unreactive because their outer electron shells are full, making them very stable.
- The periodic table is divided into groups (columns) and periods (rows), with elements in the same group sharing similar chemical properties.

Quick Questions

1. What does the atomic number represent?
2. Name one property of metals.
3. What is special about Group 18 elements?
4. Why do elements in the same group have similar properties?
5. Which group contains the most reactive metals?
6. How does the reactivity of Group 1 elements change as you move down the group?
7. Why are noble gases used in balloons instead of hydrogen?

Fun Fact

Helium in the periodic table is lighter than air, which is why balloons float!