

9. The Periodic Table: chemical periodicity

Starter Quiz · 课前小测

A-Level Chemistry

Name: _____ Score: _____

1. Periodicity means that properties:

- ☐ repeat in a regular pattern across each period
- ☐ are random
- ☐ only change down a group
- ☐ never change

2. Which Period 3 elements react with water?

- ☐ sodium (fast) and magnesium (very slowly)
- ☐ all of them
- ☐ silicon and phosphorus
- ☐ none of them

3. Across Period 3, the oxides change from:

- ☐ basic (metals) through amphoteric to acidic (non-metals)
- ☐ acidic to basic
- ☐ all basic
- ☐ all neutral

4. From its position, what can you predict about a Group 1 element?

- ☐ it is a reactive metal that forms a +1 ion
- ☐ it is an unreactive gas
- ☐ it forms a -1 ion
- ☐ it is a non-metal

5. Across Period 3, the atomic radius:

- ☐ decreases, as the rising nuclear charge pulls the same shell inwards
- ☐ increases
- ☐ stays constant
- ☐ doubles

6. The same periodic patterns apply to any group or period, not just Period 3.

- ☐ True
- ☐ False

7. Across a period, elements change from metallic to _____.

- ☐ True
- ☐ False

8. Across Period 3, atomic radius decreases.

9. Sodium reacts vigorously with water to form sodium hydroxide and _____.

10. Sodium oxide dissolves in water to form an alkaline solution.

- ☐ True
- ☐ False

1. repeat in a regular pattern across each period

Periodicity is the repeating pattern of properties across the periods of the table.

2. sodium (fast) and magnesium (very slowly)

Only Na and Mg react with water; sodium reacts fast, magnesium only very slowly with cold water.

3. basic (metals) through amphoteric to acidic (non-metals)

Metal oxides on the left are basic; non-metal oxides on the right are acidic; Al_2O_3 is amphoteric in between.

4. it is a reactive metal that forms a +1 ion

Group 1 elements are reactive metals with one outer electron, forming +1 ions.

5. decreases, as the rising nuclear charge pulls the same shell inwards

More protons pull the outer shell in more strongly, while shielding stays about the same.

6. True

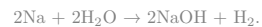
Periodicity is general — once you know the trends, they apply across the whole table.

7. non-metallic

Metallic character decreases across a period.

8. True

Increasing nuclear charge pulls electrons closer.

9. hydrogen**10. True**

Metal oxides are basic; non-metal oxides acidic.