

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 _____.

8. Across Period 3, atomic radius decreases.

☐ True ☐ False

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

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

☐ True ☐ False

A-Level Chemistry

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.