# Chemical Reactivity

**LESSON 1 | METALS AND THEIR REACTIONS | 30–35 MIN**

Name: _____ Class: _____ Date: _____

Learning goals: Use key vocabulary, write word equations, and compare how metals react with oxygen and cold water.

## A Match the vocabulary 6 marks

Write one letter (A–F) beside each term. Use each letter once.

| Term | Meaning |
|---|---|
| 1. reactivity ____ | A. A solid that forms in a liquid during a reaction |
| 2. reactant ____ | B. A substance made during a reaction |
| 3. product ____ | C. A compound made of a metal and oxygen only |
| 4. metal oxide ____ | D. How readily a substance reacts |
| 5. precipitate ____ | E. A substance present at the start of a reaction |
| 6. alkaline ____ | F. Having a pH above 7 |

## B Choose the best answer 6 marks

7. What forms when magnesium burns in oxygen?

A. Magnesium hydroxide
B. Magnesium oxide
C. Hydrogen
D. Magnesium chloride

8. Which conditions are needed for iron to rust?

A. Water only
B. Oxygen only
C. Heat only
D. Water and oxygen

9. Which metal forms a black oxide when heated in oxygen?

A. Copper
B. Gold
C. Silver
D. Potassium

10. Why is sodium stored under oil?

A. To make it react faster
B. To turn it into an oxide
C. To keep air away from it
D. To make it dissolve

11. Which gas is produced when calcium reacts with cold water?

A. Oxygen
B. Hydrogen
C. Nitrogen
D. Carbon dioxide

12. Which metal reacts more vigorously with cold water than sodium?

A. Copper
B. Magnesium
C. Calcium
D. Potassium



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## Word Equations and Evidence

### C Fill in the blanks 6 marks

Use each term in the word bank once. Write names, not chemical symbols.

**alkaline • calcium hydroxide • hydrogen • magnesium oxide • metal oxide • oxygen**

13. metal + oxygen → _____

14. magnesium + oxygen → _____

15. copper + _____ → copper oxide (heat needed)

16. calcium + cold water → _____ + hydrogen

17. sodium + cold water → sodium hydroxide + _____

18. Sodium hydroxide makes the solution _____.

### D Short answers 8 marks

The observations below are provided for analysis. No practical work is required.

| Metal | Observation in cold water |
|---|---|
| Potassium | Very vigorous reaction; moves rapidly on the surface |
| Calcium | Bubbles form and the mixture turns milky white |
| Magnesium | Reacts very slowly |
| Copper | No visible reaction |

19. Put the four metals in order from most reactive to least reactive in cold water. [2]

_____

20. Give one observation that shows calcium produces a gas. Name the white solid. [2]

_____

_____

21. Why is gold suitable for jewellery? Link its reactivity with oxygen to its appearance. [2]

_____

_____

22. Compare the products when magnesium reacts with oxygen and when calcium reacts with cold water. [2]

_____

_____

### Optional preview Section 6.3 2 bonus marks

23. Magnesium reacts with dilute hydrochloric acid. Complete the word equation.

magnesium + dilute hydrochloric acid → _____ + _____



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