



# Reacting metals

## Task 1: Group II reactions

- 1 Your teacher has demonstrated the reactions between calcium and magnesium with oxygen and water in turn. Complete the table to describe the results:

Group II metal	With oxygen	With water
Magnesium		
Calcium		

- 2 Write word equations for the reactions of magnesium and calcium with oxygen.

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- 3 What are the similarities between the reaction of magnesium with oxygen and calcium with oxygen?

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- 4 Write word equations for the reaction between magnesium and water, and calcium and water.

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## Task 2: Symbol equations

When calcium reacts with oxygen, the word equation is:



Adding formulae to write a symbol equation, this becomes:



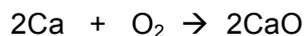
There is one atom of calcium on the left-hand side and one on the right. The calcium balances.

There are two atoms of oxygen on the left-hand side, but only one on the right hand side. The oxygen does not balance.

We have enough oxygen in O<sub>2</sub> to make two particles of calcium oxide. We write this as:



But now the calcium is not balanced. We have one atom on the left-hand side and two on the right hand side. We need two atoms of calcium on the right-hand side.



This equation is balanced.

- 1 Write a balanced symbol equation for the reaction between magnesium and oxygen.

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- 2 Barium burns in oxygen to form solid barium oxide, BaO. Write word and symbol equations for the reaction.

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State symbols are used to show whether the reactants and products in a reaction are solids, liquids, gases or dissolved in water.

The state symbols are:

State	Symbol
solid	s
liquid	l
gas	g
in solution (dissolved in water)	aq

- 3 Add state symbols to the reaction between magnesium and oxygen.

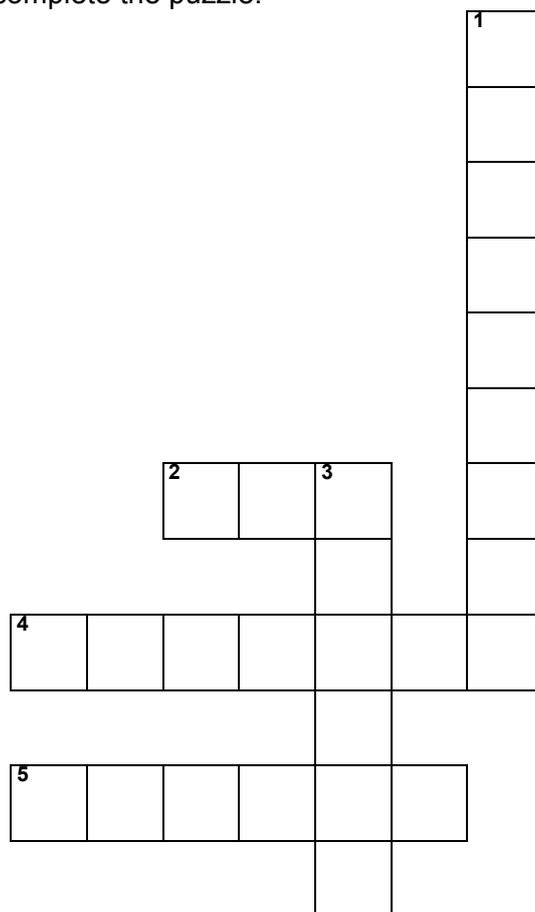
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- 4 Add state symbols to the reaction between barium and oxygen.

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### Task 3: Summary crossword

Use the clues below to complete the puzzle.



#### Across

- 2 The Group of the Periodic Table that calcium and magnesium belong to.
- 4 Metal with the symbol Ca.
- 5 The gas that reacts with calcium and magnesium when they burn.

#### Down

- 1 Metal with the symbol Mg.
- 3 The type of compounds formed when metals are burnt in air.