

# The reactivity of Group 2 metals

## Topic

Periodicity, reactivity, salt formation, reactions of acids.

## Timing

30 min.

## Description

Students react magnesium and calcium with hydrochloric acid to find out which is the most reactive.

## Apparatus and equipment (per group)

- Test-tube rack
- Two test-tubes
- Splint.

## Chemicals (per group)

- Hydrochloric acid 1 mol dm<sup>-3</sup> **Low Hazard**
- Magnesium (small piece of ribbon) (**Pyrophoric, water reactive**)
- Calcium small piece (**Water reactive**) (Do not use old calcium, use fresh stock.)

## Teaching tips

Discussion about how to judge the speed of the reaction is advisable. Remind students about the test for hydrogen. Calcium can be distributed on pieces of filter paper.

## Background theory

Group 1 is the most reactive group of metals. The Group 1 metals get more reactive the lower they are in the group. Group 2 metals are also reactive. This experiment compares their reactivity.

## Safety

Wear eye protection.

## Answers

1. Calcium.
2. Magnesium + hydrochloric acid → magnesium chloride + hydrogen  
Calcium + hydrochloric acid → calcium chloride + hydrogen
3.  $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$   
 $\text{Ca} + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2$

## Credits

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*Health & safety checked January 2018*

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