

# Carbonates and acids

## Task 1: Which rock? (Levels 3–4)

You have four samples of different rocks, some broken sea shells and some broken egg shells. You are going to test these with dilute hydrochloric acid to find out which may contain calcium carbonate.

### Method:

- 1 Put a small sample of a rock in a test tube and add a few drops of dilute hydrochloric acid, using a dropper.
- 2 Look carefully to see if a gas is given off and record the results in the table.

Sample	Is a gas given off?	Is this a carbonate?
Rock sample 1		
Rock sample 2		
Rock sample 3		
Rock sample 4		
Sea shells		
Egg shells		



Now answer these questions.

- 1 Which gas is given off when dilute acid reacts with calcium carbonate?

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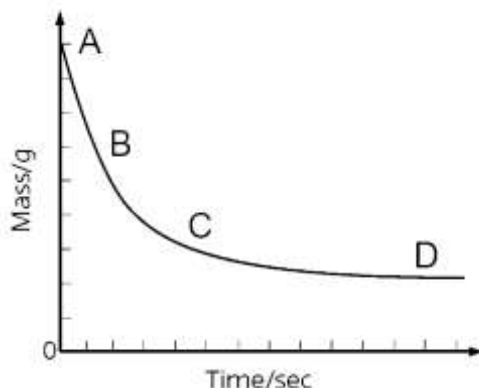
- 2 How could you test for this gas and what is the positive result?

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3 What can you conclude about your results?

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### Particle explanations (Levels 6–8)



This graph shows some results from plotting the mass changes when calcium carbonate reacts with dilute hydrochloric acid.

1 Which letter on the graph shows when the reaction is about to start?

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2 Which letter shows when one of the reactants has been used up?

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3 Which letter shows a high reaction speed?

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4 Which letter shows a slow reaction speed?

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5 What happens to the number of acid particles as the reaction proceeds?

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6 What happens to the number of calcium carbonate particles as the reaction proceeds?

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7 What happens to the number of salt particles as the reaction proceeds?

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Read the section 'Particle pictures' on page 93 of your Pupil Book and look at figure 5.

8 In your notebook, draw labelled diagrams to show the particles when the acid is reacting with the limestone. Use a key to show the different types of particles.

**9** Now draw a diagram to show the particles when the reaction is nearly over. Use the same key.