Name ..... Class ..... Date .....

# Changing the rate

## Specification reference:

- C6.1.2 Factors which affect the rates of chemical reactions

### Aims

This activity will help you to develop your understanding of the factors that affect the rate of a chemical reaction, so that you can achieve the highest grade possible in your GCSE examinations.

## Learning outcomes

After completing this activity, you should be able to able to:

- explain the effect of concentration on the rate of reaction
- explain the effect of surface area on the rate of reaction
- explain the effect of temperature on the rate of reaction.

## Task

Answer the questions below.

**1** If you place a piece of magnesium ribbon into some dilute acid, it fizzes and gives off hydrogen gas.

**a** State which one of these would *not* change the rate of reaction:

- increasing the surface area of the magnesium ☐
- adding more acid ☐
- cooling the acid down ☐
- reducing the concentration of the acid. ☐ (*1 mark*)

**b** State what effect it would have.

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..... (*1 mark*)

**2** State what effect raising the temperature will have on the acid particles.

..... (*1 mark*)

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**3** Give two reasons why this will make the reaction faster.

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..... (*2 marks*)

**4** Explain how you could increase the surface area of the magnesium.

..... (*1 mark*)

**5** Explain why increasing the surface area makes the reaction faster.

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..... (*2 marks*)

**6** Describe an experiment to test the effect of changing the acid concentration.
You should include:

- a diagram showing how you could catch the gas from the reaction
- how you could use the collected gas to measure the *rate* of the reaction, not just how long the reaction lasts
- how you would decide which acid concentration gave you the fastest reaction.

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..... (*5 marks*)