



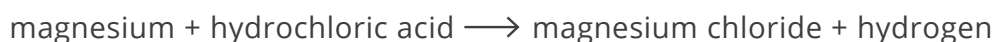
# The Rate and Extent of Chemical Change

## Multiple Choice Questions

### Set 1

Tick **one** box.

1. The reaction of magnesium metal with hydrochloric acid is shown by the word equation below.



Which word describes the magnesium in this reaction?

- A. catalyst
- B. gas
- C. product
- D. reactant

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2. How can the rate of a chemical reaction be found?

- A. by measuring how long the reaction takes
- B. by measuring the quantity of the products formed
- C. by measuring the quantity of reactant used up or the quantity of the products formed over time
- D. by measuring the temperature of the reaction over time

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3. Which factor does **not** affect the rate of a chemical reaction?

- A. pressure
- B. surface area
- C. temperature
- D. volume

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4. According to collision theory, when can chemical reactions occur?

- A. when particles collide with each other
- B. when particles have enough energy
- C. when particles collide with each other with enough energy
- D. when particles collide with each other, have enough energy and are exposed to sunlight

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5. Which statement is **not** true?

- A. catalysts are used up in chemical reactions
- B. catalysts can help to reduce the cost of large-scale chemical reactions
- C. catalysts reduce the activation energy of chemical reactions
- D. different chemical reactions may need different catalysts

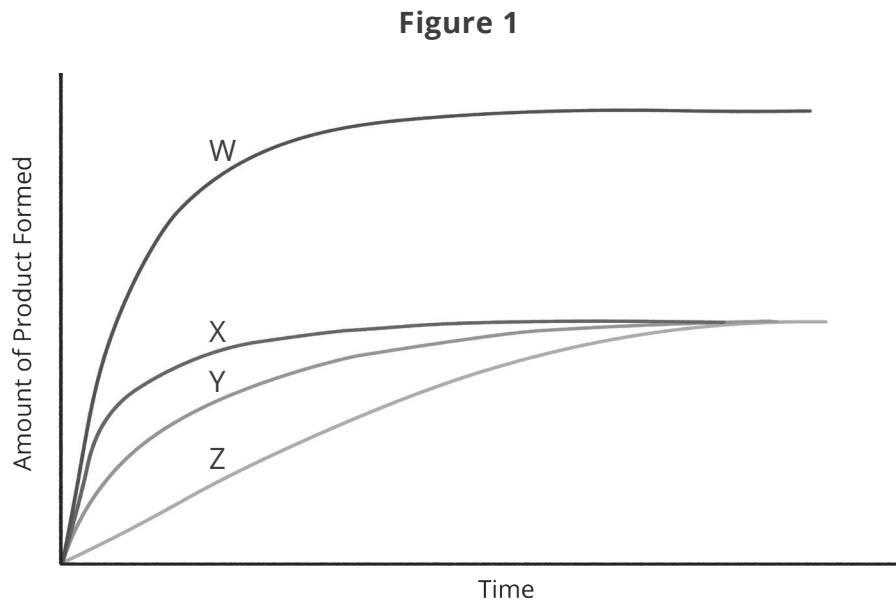
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6. Why does increasing the concentration of a reactant increase the rate of a reaction?

- A. particles are more spread out
- B. particles collide more often
- C. particles have more energy
- D. particles move more quickly

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7. **Figure 1** shows the amount of product formed over time in four different chemical reactions.



Which reaction was the slowest?

- A. W
- B. X
- C. Y
- D. Z

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8. What does the symbol  $\rightleftharpoons$  represent?

- A. a catalysed reaction
- B. an endothermic reaction
- C. an exothermic reaction
- D. a reversible reaction

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9. When anhydrous copper sulfate reacts with water there is a colour change from white to blue. This reaction releases 77.1kJ/mol of energy.



How much energy is needed to turn hydrated copper sulfate into anhydrous copper sulfate?

- A. 15.0kJ/mol
- B. 38.6kJ/mol
- C. 77.1kJ/mol
- D. 154.2kJ/mol

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10. If a reversible reaction takes place in a sealed container, when is equilibrium reached?

- A. when the chemical equation is balanced
- B. when the concentration of the reactants is equal to the concentration of the products
- C. when the forward and backward reactions occur at exactly the same rate
- D. when the maximum possible amount of product has been made

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