

WJEC (Wales) Chemistry GCSE

1.5 - Rate of Chemical Change

Flashcards

This work by [PMT Education](https://www.pmt.education) is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)



How can the rate of reaction be determined through the reactant, when there is a solid reactant and a gaseous product?



How can the rate of reaction be determined through the reactant, when there is a solid reactant and a gaseous product?

Carry out the reaction on a set of weighing scales and measure the loss of reactant mass over time



How can the rate of reaction be determined through the product, when there is a solid reactant and a gaseous product?



How can the rate of reaction be determined through the product, when there is a solid reactant and a gaseous product?

Gas collection - measure the volume of gas produced in a gas syringe over time



What instrument would you use to record values at given time intervals during an experiment to determine the rate of reaction?



What instrument would you use to record values at given time intervals during an experiment to determine the rate of reaction?

Data logger



What is the effect of change in temperature on the rate of reaction?



What is the effect of change in temperature on the rate of reaction?

An increase in temperature leads to an increase in the rate of reaction



What is the effect of change in concentration or pressure on the rate of reaction?



What is the effect of change in concentration or pressure on the rate of reaction?

An increase in concentration or pressure leads to an increase in the rate of reaction



What is the effect of change in surface area on the rate of reaction?



What is the effect of change in surface area on the rate of reaction?

An increase in surface area leads to an increase in the rate of reaction



Using the particle theory, explain the effect of temperature change on the rate of reaction.



Using the particle theory, explain the effect of temperature change on the rate of reaction.

- Increasing the temperature gives the particles more kinetic energy
- This means that they collide more frequently and the collisions have more energy
- Activation energy is more likely to be reached



Using the particle theory, explain the effect of a change in concentration on the rate of reaction.



Using the particle theory, explain the effect of a change in concentration on the rate of reaction.

- Increasing the concentration increases the frequency of collision as there are more reactant particles occupying the same volume



Using the particle theory, explain the effect of a change in pressure on the rate of reaction.



Using the particle theory, explain the effect of a change in pressure on the rate of reaction.

- Increasing the pressure increases the frequency of collisions as the reactant particles are closer together



Using the particle theory, explain the effect of a change in surface area on the rate of reaction.



Using the particle theory, explain the effect of a change in surface area on the rate of reaction.

- A greater surface area means more of the reactant particles are exposed and available to react, so the frequency of collision increases



What is a catalyst?



What is a catalyst?

Catalysts are substances that speed up chemical reactions without being changed or used up during the reaction



How do catalysts work?



How do catalysts work?

- Catalysts decrease the activation energy
- This increases the proportion of particles with sufficient energy to react



What are enzymes?



What are enzymes?

Enzymes are biological catalysts which catalyse particular reactions under particular conditions with regards to pH and temperature



What are the uses of enzymes?



What are the uses of enzymes?

Outside of the human body enzymes are:

- Found in washing detergents
- Used in the manufacture of cheese
- Used by yeast to produce ethanol from the fermentation of sugars
 - ethanol is found in alcoholic drinks

