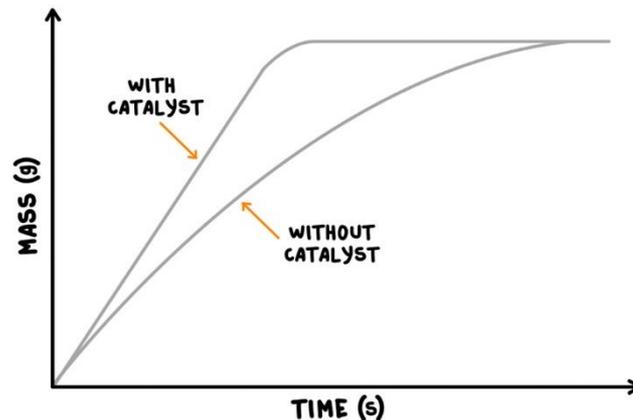
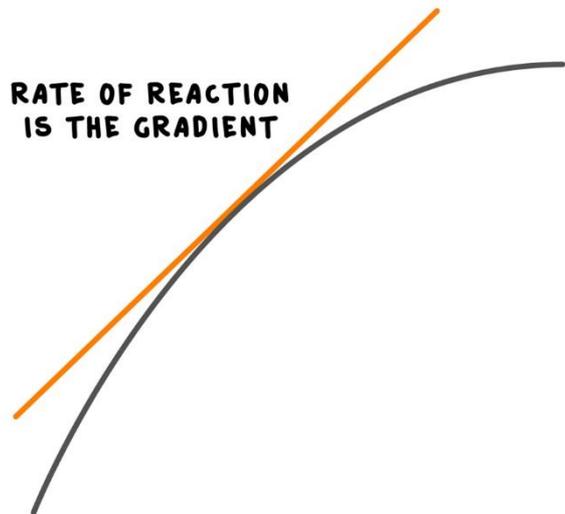


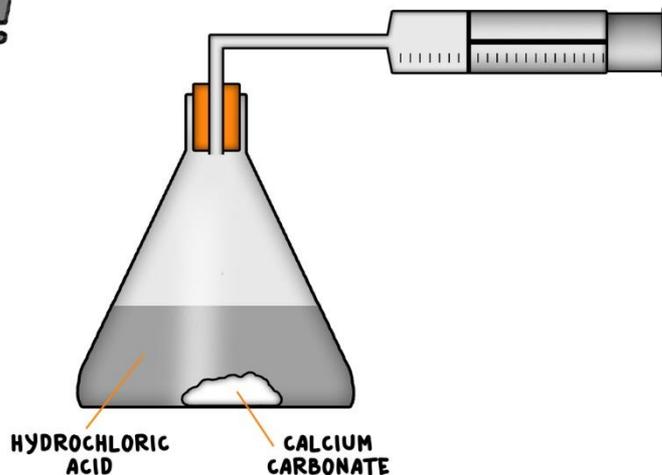
EXOTHERMIC
 ENDOTHERMIC



AQA GCSE THE RATE AND EXTENT OF CHEMICAL CHANGE THINKIT!



RATE OF REACTION
 IS THE GRADIENT



Calculating rates of reaction:

- A student carried out an experiment to measure the mass of gas lost by a reaction in a certain length of time. The rate of reaction was 1.5 g/sec and the length of time she did the reaction for was 30 seconds. How much gas was lost and what was the unit?
- **(HT only)** 11g of carbon dioxide was released by a reaction in 40 seconds, Calculate the rate of reaction in moles per second.

Factors which affect the rates of reaction

- What are the five factors that affect the rate of a reaction and explain how the rate changes when the factor is changed.
- Draw a graph to show the change in reaction rate when any one factor is altered.
- Explain how you would use a tangent on the graph to calculate the rate of reaction.

Collision theory and activation energy

- Explain, using the collision theory, how increasing concentration and decreasing the size of solid reacting particles can increase the rate of reaction.
- Describe what activation energy is and explain why reactions with high activation energies are difficult to start.

Catalysts:

- Use the lock and key mechanism, with diagrams, to explain why catalysts are reaction specific.
- Draw a reaction profile to explain how using a catalyst can increase the rate of reaction.
- **(HT only)** draw a reaction profile to explain why a catalyst would increase the rate of reaction for an endothermic reaction.

The effect of changing concentration on equilibrium (HT Only)

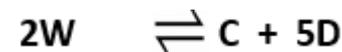
- Use Le Chatelier's principle to explain what affect increasing the concentration of a product will have on an equilibrium.
- What would happen to the concentration of the reactants if we halved the concentration of the products?

The effect of changing temperature on equilibrium (HT Only)

- A system is in equilibrium giving the reaction $A + B \rightleftharpoons C + D$
If the forward reaction is endothermic, explain what will happen to the system if the temperature of the system is increased and why this happens.

The effect of changing pressure on equilibrium (HT Only)

- In the equilibrium below, what will happen to the position of equilibrium if the pressure in the system is halved?



AQA

The Rate And Extent of Chemical Change

ThinkIT!

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Energy changes, reversible reactions and equilibrium

- Write a balanced symbol equation for the reversible reaction when nitrogen gas reacts with hydrogen gas to make ammonia gas.
- What would you need to do to ensure that the above reaction could reach equilibrium?