

AQA Chemistry A-level

Topic 1.5 - Kinetics

Flashcards

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What must particles do in order to react?



What must particles do in order to react?

Collide with sufficient energy (activation energy)
and the correct orientation



Do most collisions result in a reaction?



Do most collisions result in a reaction?

no



Define Activation Energy.



Define Activation Energy.

The minimum energy that particles must collide with for a reaction to occur



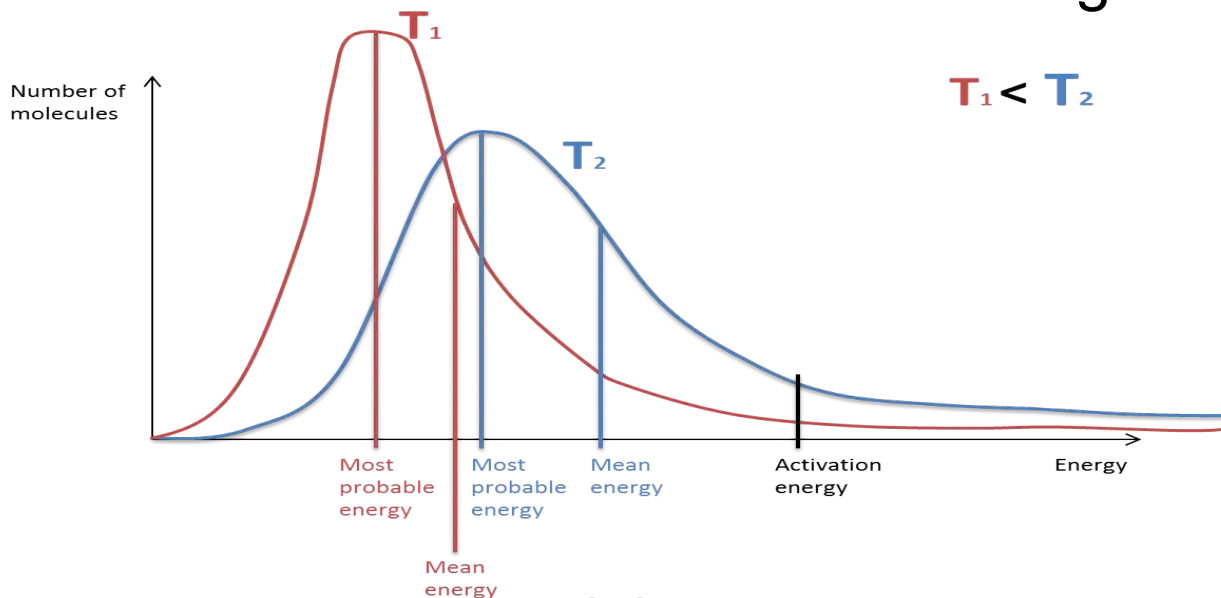
Draw a labelled Maxwell-Boltzmann Curve. Label average energy, activation energy and most probable energy.

Draw in a different colour the effect of increasing temperature



Draw a labelled Maxwell-Boltzmann Curve. Label average energy, activation energy and most probable energy.

Draw in a different colour the effect of increasing temperature



What is the effect of increasing temperature on rate of reaction? why?



What is the effect of increasing temperature on rate of reaction? why?

Increasing temperature → increased rate of reaction

Much higher proportion of particles have energy greater than the activation energy → many more successful collisions per second → increased rate



What is the effect of
increasing
concentration/pressure on
rate of reaction? why?



What is the effect of increasing concentration/pressure on rate of reaction? why?

Increased concentration/pressure → increased rate of reaction

There are more particles in a given volume → more frequent successful collisions → increased rate



What is a catalyst?



What is a catalyst?

A substance which increases the rate of reaction but is not used up in the reaction



How do catalysts work and
how do they increase the
rate of reaction?



How do catalysts work and how do they increase the rate of reaction?

Provide an alternative reaction pathway (one with a lower activation energy)

Lowers activation energy, so more particles have energy $>$ activation energy, so more frequent successful collisions, so increased reaction rate

