

Knowledge Organiser: Year 8 – Chemical Energy

Section 1: Key Words

Chemical bond	lasting attraction between atoms
Exothermic	Making bonds during a reaction, temperature increase and heat is given out
Endothermic	Breaking bonds during a reaction, temperature decreases and heat is taken in
Catalyst	a substance that speeds up a chemical reaction, but is not consumed by the reaction

Section 2: Chemical vs Physical Reaction

Chemical	Physical
Can't be reversed	Can be reversed
Bonds between atoms broken and new ones made	Bonds between atoms unchanged but attraction between particles strengthened or weakened
New substances formed	Substance stays the same but changes stay ice → water)

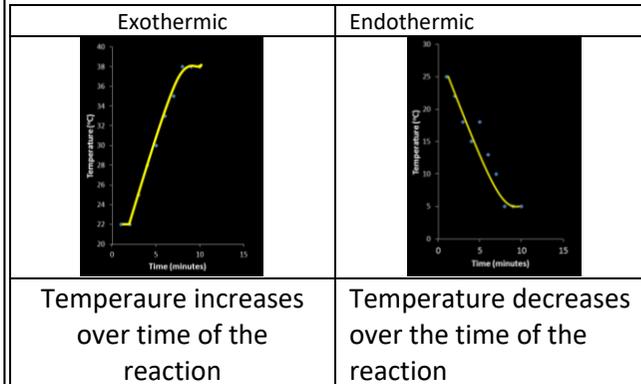
Section 3: Reversible vs Irreversible

Reversible	Irreversible
Can be undone	Can't be undone
Non-permanent	Permanent
Doesn't create a new substance	New substances formed
Freezing, boiling, melting at all examples	Burning is an example

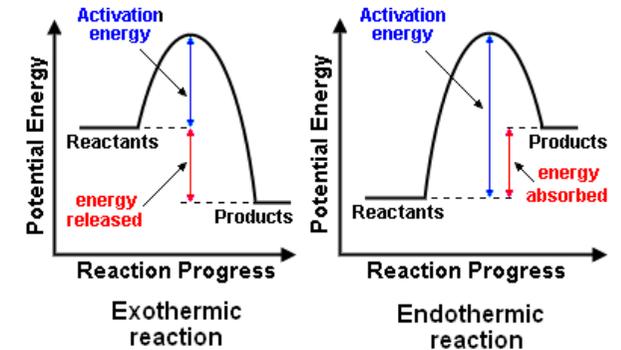
Section 4: Exothermic vs Endothermic

Exothermic	Endothermic
Gets hot	Gets cold
gives out energy to the surroundings	Takes in energy from the surroundings
Makes bonds	Breaks bonds
Causes a rise in the temperature	Causes a fall in the temperature
Examples include burning and neutralisation	Example: electrolysis

Section 5: Exothermic vs Endothermic graphs



Section 6: Energy Diagrams



Section 7: Rates of Reaction

1. Particles need to collide for a reaction to occur
2. To be successful collisions need to have enough energy
3. The minimum energy needed is called the activation energy
4. If collision happen by they don't have enough energy then there is no reaction

The rate of a reaction is how fast these successful collisions occur.

Section 8: Rates of Reaction and Temperature

Increasing the temperature a reaction occurs at increases the rate of the reaction.

More energy in a collision	Increasing the temperature means particles have more energy when they collide. This means they are more likely to have the activation energy and be successful
More collisions	Increasing the temperature means particles have more energy and move around more. This means there are more collisions

Endothermic	Products have more energy than reactants
Exothermic	Reactants have more energy than products

Section 9: Rates of Reaction and Catalysts

Catalysts speed up the rate of a reaction

1. Catalyst lower the amount of energy needed for a reaction to occur
2. This means more collision reach the minimum amount of energy needed to be successful
3. Catalysts don not get used up in a the reaction