

Biology

Monomer

A small molecule that can join to form a polymer.

Polymer

A long chain of repeating units called monomers.

Enzymes are biological catalysts that break down polymers into monomers.

Polymer	Enzyme	Monomer	Use of monomer
Carbohydrates	Carbohydrase	Glucose	Energy
Proteins	Protease	Amino Acids	Growth and Repair
Lipids (fats)	Lipase	Glycerol and Fatty Acid	Long term energy and insulation

The Digestive System

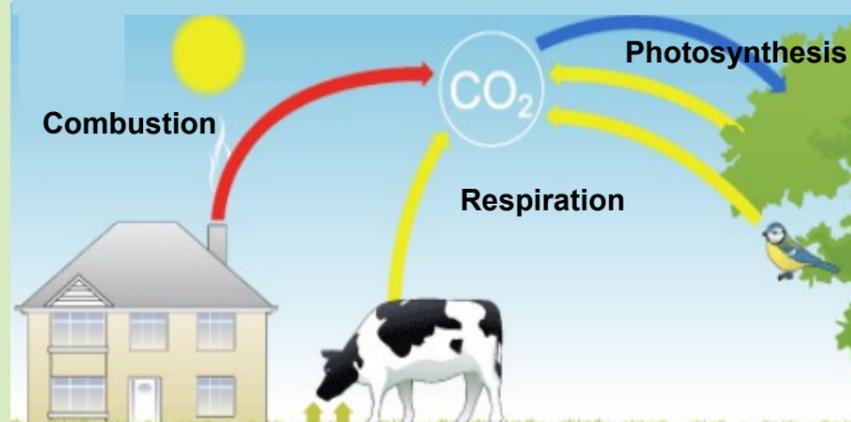
Stomach	Where ingested food is stored and broken down.
Small intestine	Where food molecules are absorbed into the blood.
Large intestine	Where water molecules are absorbed into the blood.

Plants synthesise their own food using energy from the sun in **photosynthesis**.

This allows them to make carbohydrates such as **sucrose**, **starch** and **cellulose**.

Chemistry

The atmosphere contains: **Nitrogen 78%**, **Oxygen 21%**, **Carbon dioxide 0.035%** and **other gases < 1 %**



Respiration (causes an increase of CO₂)

glucose + oxygen → carbon dioxide + water

Complete combustion (causes an increase of CO₂)

fuel + oxygen → carbon dioxide + water

Photosynthesis (causes an decrease of CO₂)

carbon dioxide + water → glucose + oxygen

Climate change is caused by increased CO₂ in the atmosphere. This can be caused by:

- Deforestation
- Farming
- Decomposition
- Combustion of fossil fuels
- Respiration

Physics

Energy store	Description	Example
Thermal	Hot objects	Hot coffee
Kinetic	All moving objects	Planets, buses
Electrostatic	Charged objects	Thunder clouds
Gravitational potential	An object high up	Aeroplanes, kites, a book on a shelf.
Chemical	Energy stored in chemical bonds	Food, fuel, batteries.
Elastic potential	Stretched or squashed materials.	Catapults, springs, balloons.
Magnetic	Caused by the attraction or repulsion between magnets	Fridge magnets, compasses, maglev trains
Nuclear	The energy stored in an atom.	Uranium.

Key Definitions

Conduction	The transfer of energy by vibrations.
Radiation	Energy transferred as a wave.
Convection	The transfer of energy by movement of particles. Only occurs in fluids.
Insulation	A material that does not allow thermal energy to pass through easily.
Conservation of energy	Energy cannot be created or destroyed. It can only be stored or transferred between stores.
Transfer of energy	The movement of energy from one store to another.
Dissipate	Lost to the surroundings.
Efficacy	How effective something is.

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