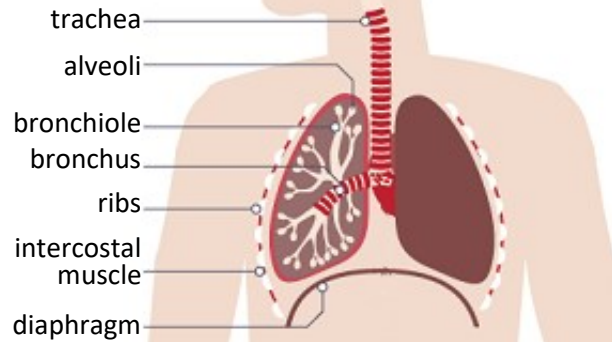


1. Biology



Inhalation	Exhalation
Diaphragm contracts, moves downwards.	Diaphragm relaxes, moves upwards.
Intercostal muscles contract, ribs move up and out.	Intercostal muscles relax, ribs move down and in.
Air drawn in to the lungs.	Air forced out of the lungs.

Gas Exchange	The process which occurs at the alveoli to move oxygen into our blood and carbon dioxide out of our blood. In plants, this takes place at the stomata
--------------	---

Adaptations of alveoli for gas exchange: thin walls; large surface area; moist surface and many blood capillaries.

Effects of smoking: smoker's cough (damaged cilia); nicotine addiction; lung cancer; emphysema (damaged alveoli) and coronary heart disease.

Effects of exercise on the body: increased heart rate; increased breathing rate and increased temperature.

3. Chemistry

Combustion	When a fuel reacts with oxygen to produce carbon dioxide and water. Fuel + oxygen → carbon dioxide + water
Thermal Decomposition	When a substance is broken down to form new products using heat. Carbonate → Oxide + carbon dioxide
Neutralisation	When an acid and alkali react to form a salt and water. Acid + alkali → salt + water
Exothermic	A reaction which releases energy in the form of heat to the surroundings.
Endothermic	A reaction which absorbs energy in the form of heat from the surroundings.
Catalyst	A substance which increases the rate of a chemical reaction without being used up.

2. Biology

Respiration	A chemical reaction that takes place in the mitochondria. Releases energy for life processes.
-------------	---

Aerobic Respiration:

In **all** organisms; oxygen + glucose → water + carbon dioxide.

Anaerobic Respiration:

In **plants and animals**; glucose → lactic acid.

In **unicellular organisms** this is known as **fermentation**.

Anaerobic respiration releases **less energy** than aerobic respiration.

4. Physics

Energy	A quantity required to do work e.g. movement or heating.
Renewable	An energy source that <u>will not</u> run out on a time scale of 1 million years e.g. solar and wind.
Non-renewable	An energy source that <u>will</u> run out on a time scale of 1 million years e.g. coal, oil or gas.
Power	The rate of energy transfer, measured in watts (W). Power (W) = Energy (J) ÷ time (S)

Converting units:

- 1000 W = 1 kW
- 1000 J = 1 kJ
- 3,600,000 J = 1 kWh
- 3600 s = 1 h

Hazard: something that could cause harm to you or another person e.g. broken glass

Risk: how the hazard causes harm e.g. cuts

