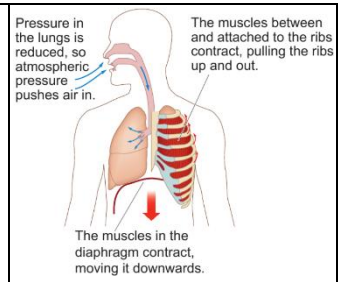
8C Breathing and Respiration

1. Aerobic Respiration

Aerobic Respiration	Using oxygen to release energy from glucose.
Aerobic Respiration Word Equation	glucose + oxygen → carbon dioxide + water
Combustion	The word equation for combustion (burning) of glucose is the same as above but occurs in a different way.
Reactants	The starting substances- written on left of word equation.
Products	The new substances made- written on right of word equation.

2. Gas Exchange System

Breathing	Muscle movement allowing the lungs to expand/contract.
Ventilation	Movement of air into / out of the lungs.
Diaphragm	Organ below the lungs that contracts / relaxes changing the size of the lungs.

Inhalation breathing in	
Mucus	Sticky liquid that traps dirt, dust and microorganisms.
Cilia	Tiny hairs on cells that sweep mucus from the lungs into the gullet to be swallowed.
Gas Exchange	The swapping of gases between the lungs and the blood.
Diffusion	Movement of particles from a high concentration to low.
Alveoli	Little pockets on the lungs.

3. Getting Oxygen

Red Blood Cells	Take in oxygen when it gets into the blood.
Haemoglobin	Where the oxygen binds to in red blood cells.
Arteries	Blood vessels that carry blood from the heart to the body.
Capillaries	Tiny blood vessels that the arteries divide into. oxygen leaves red blood cells here and dissolves into the plasma.
Plasma	Liquid part of the blood that leaks out of the capillaries into the tissue fluid.
Tissue Fluid	Carries the oxygen to the cells.
Veins	Carry blood back towards the heart.
Exercise	Your muscles must release more energy so need more oxygen and glucose- your breathing and heart rates increase.

4. Comparing Gas Exchange

Limewater	Turns cloudy in the presence of carbon dioxide.
Hydrogen Carbonate Indicator	Turns from pink to yellow as carbon dioxide increases and the pH drops.
Gills	Water flows over feathery strands where oxygen diffuses into the blood and carbon dioxide out.
Stomata	Tiny holes in leaves that allow gas exchange.

5. Anaerobic Respiration

Anaerobic Respiration	Respiration that occurs in the cytoplasm of cells when oxygen isn't present during strenuous exercise.
Anaerobic Respiration Word Equation	Glucose → lactic acid
Energy	Anaerobic respiration releases less energy than aerobic.
EPOC	Excess post-exercise oxygen consumption (or oxygen debt). Extra oxygen is needed after strenuous exercise to replace lost oxygen from blood / muscles and convert lactic acid to glucose.