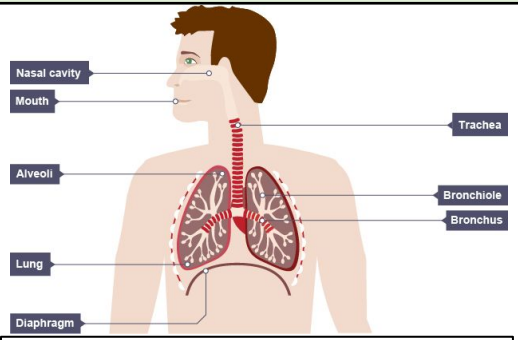
Science Department

KNOWLEDGE & VOCABULARY ORGANISER

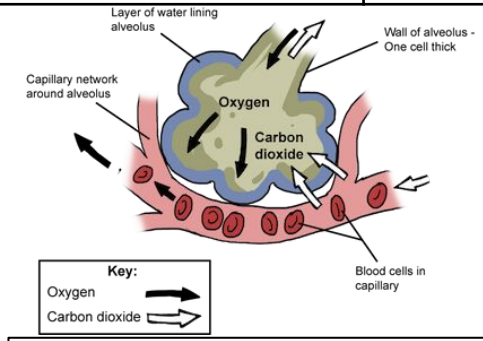
Year 8 Gas exchange

Keyword	Definition
Breathing	To draw air into and expel it from the lungs
Inhalation	Breathing in (getting oxygen in)
Exhalation	Breathing out (getting carbon dioxide out)
Diaphragm	Expands and moves down so lungs have room to fill with air (inhalation). Contracts and moves upwards to force air out of the lungs (exhalation).
Respiration	A process in living things in which energy is released from glucose Glucose + Oxygen → Carbon Dioxide + Water (+energy)
Aerobic Respiration	Respiration involving oxygen
Mitochondria	Structures in the cytoplasm of all cells where aerobic respiration takes place.
Anaerobic Respiration	Respiration without using oxygen
Glucose	A simple, organic sugar molecule used in respiration
Trachea (windpipe)	Tube that connects the mouth to the bronchi in the lungs
Bronchus	Tube that connects the trachea to the lungs
Bronchioles	Passageways that carry air from the bronchus to the alveoli
Alveoli	Tiny air sacs where gas exchange happens in the lungs

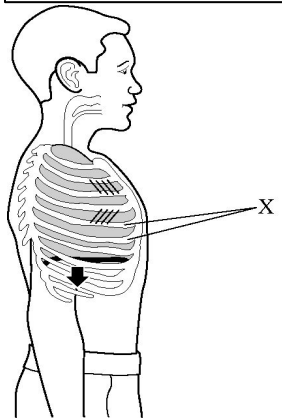
Further Reading:
https://www.bbc.co.uk/bitesize/topics/zvrrd2p/articles/zk9t6g8
https://www.bbc.co.uk/bitesize/topics/zvrrd2p/articles/zdqx2v4



The Respiratory System



Gas Exchange at the Alveoli



Inhalation

1. The rib muscles contract, pulling the ribs up and out.
2. The diaphragm contracts and flattens.
3. The volume of the chest increases.
4. The air pressure decreases.
5. Air flows into the lungs

Aerobic Respiration - with oxygen
Glucose + Oxygen → Carbon Dioxide + Water (+energy)

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

Anaerobic Respiration - without oxygen

Glucose → Lactic Acid (+energy)