

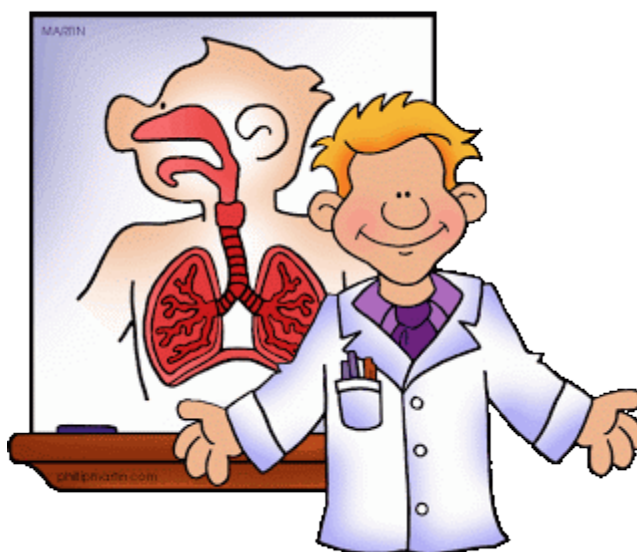
Revision Work Sheet 2 Class: 9 Year IGCSE II Subject: Biology

Chapter 11

Date 16th Oct. 2017

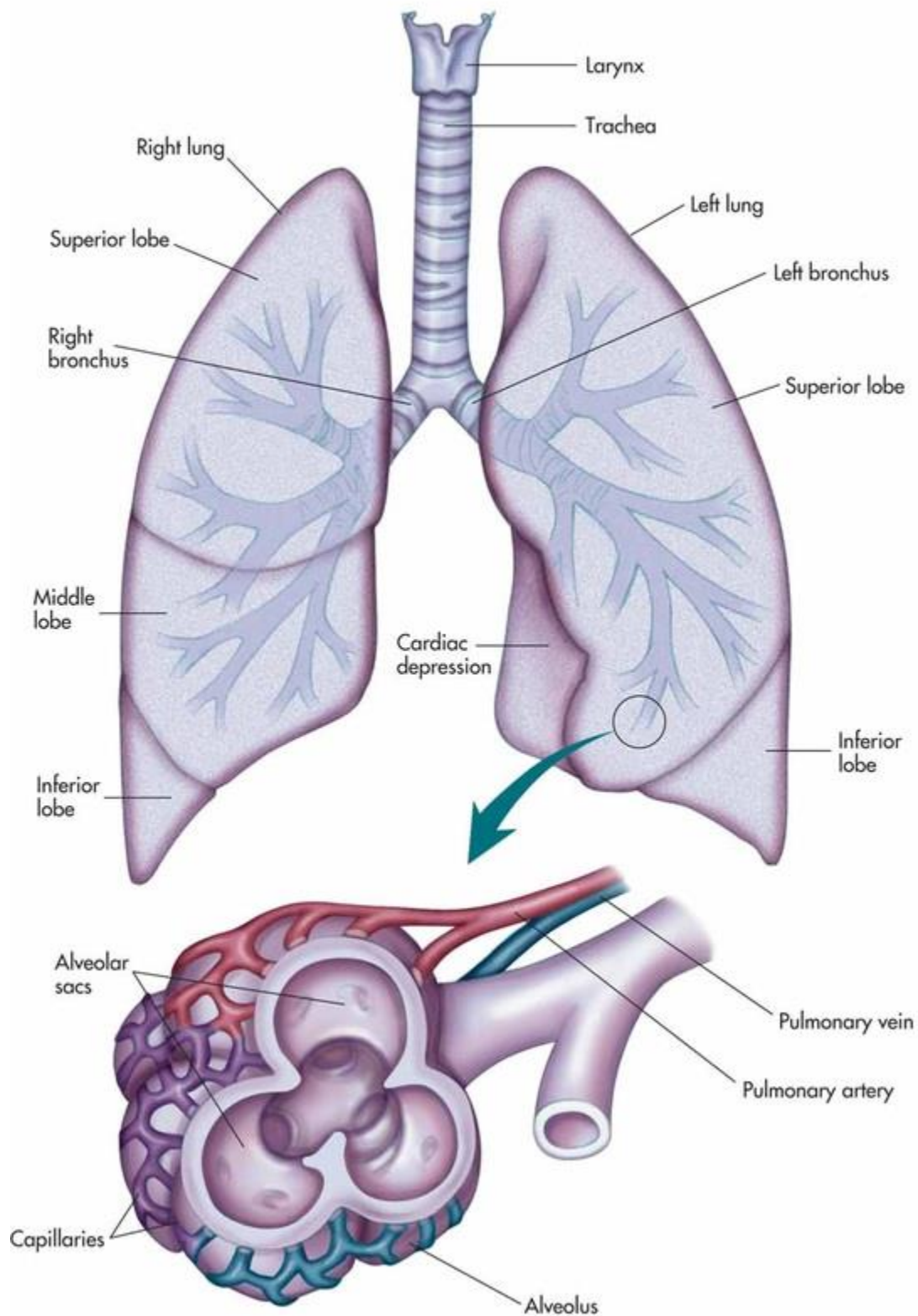
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Gaseous exchange in humans



Gas exchange usually involves **2 or more gases** transferred in **opposite** directions across a **respiratory surface**.

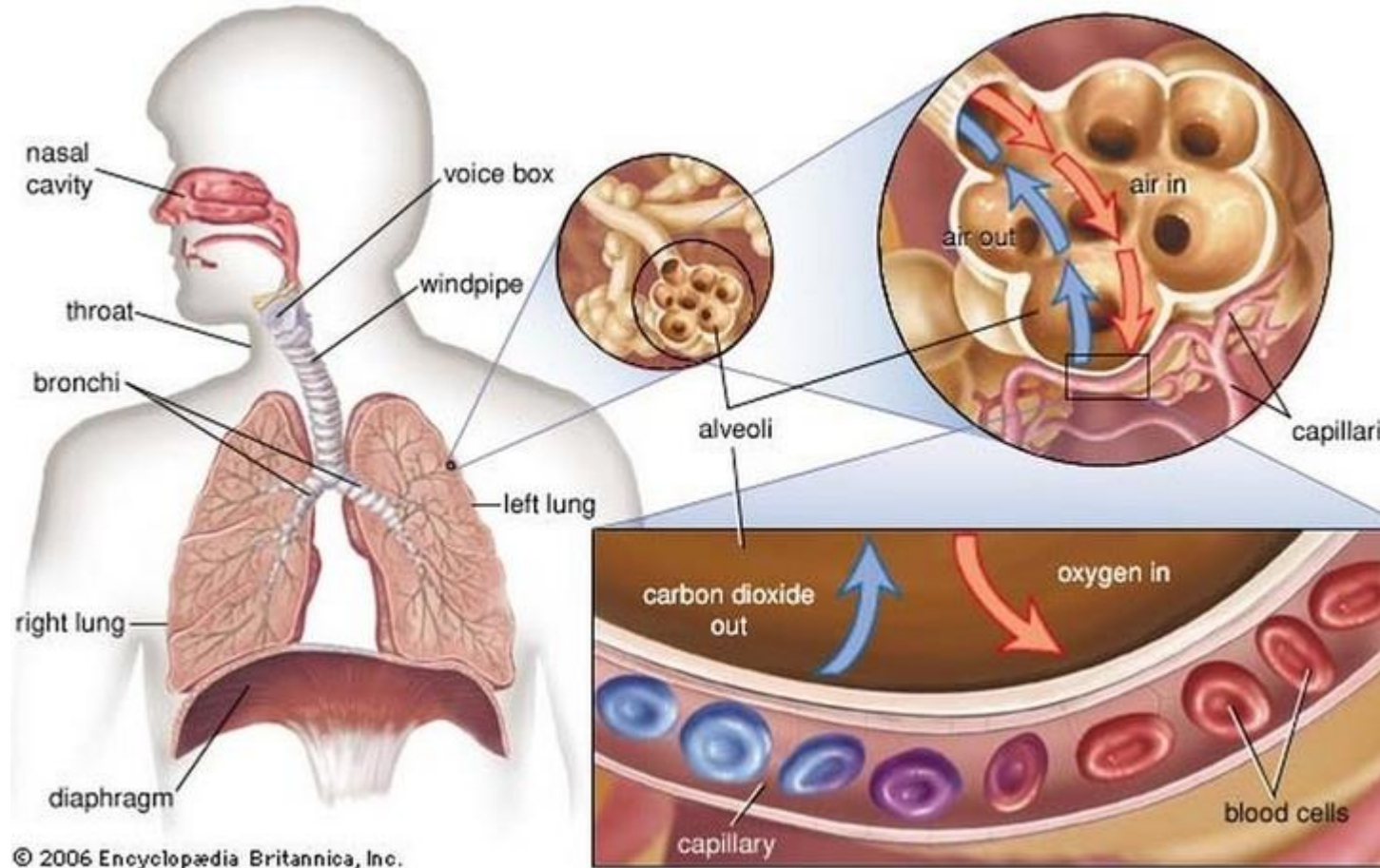
1. Structure of the breathing system: the larynx, trachea, bronchi, bronchioles, alveoli and associated capillaries.



2. Gaseous exchange relies on diffusion. To be efficient, the **gaseous exchange surface** must:

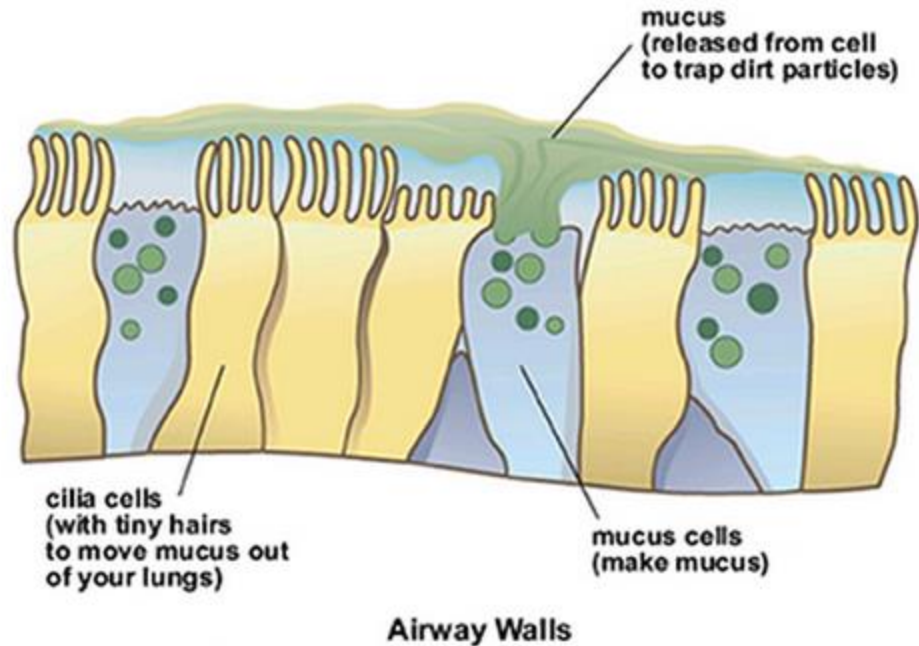
- **thin** – shorter distance to diffuse
- **moist** – allow gases to dissolve
- **large surface area**
- have a **concentration gradient** across surface – maintained by movement of air and transport/ use of gas.

These features are present in gills (fish) and alveoli (lungs).



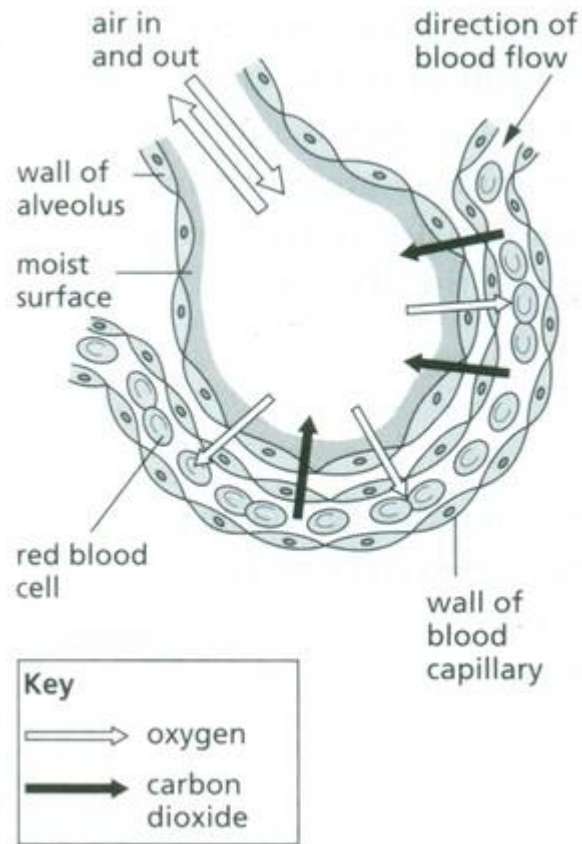
The role of mucus and cilia

- Inside the nose, thin turbinal bones are covered with a layer of cells. Some of which are **goblet cells**.
- Goblet cells produce a **liquid** (water + **mucus**) ---> evaporate ---> moisten nose.
- Cilia: tiny hair-like projections; constantly moving
- Bacteria + dust particles are **trapped** by cilia and mucus as to not move further inside the gas exchange system.



Try this

State how each feature labeled on the diagram of an alveolus makes the process of gaseous exchange efficient. [5 marks]



Answer

Wall of alveolus – one cell thick (or very thin) so that diffusion happens quickly.

Moist surface- allow O₂ to dissolve making diffusion faster.

Blood is moving – so that's concentration gradient is maintained for O₂ and CO₂

Wall of capillary – one cell thick (or very thin) so that's diffusion happens quickly.

Red blood cells – contain haemoglobin to transport O₂ away from the lungs.

The End