

ORGANIZATION OF THE RESPIRATORY SYSTEM

- Every living cell in the body needs oxygen and nutrients in order to remain alive.
- All living cells respire. They absorb O_2 and release CO_2 .
- Respiration is the process which insures the exchange of respiratory gases (O_2 and CO_2).

Respiration is manifested by:

1. **Inhalation**: inspiration of air rich in O_2 .
2. **Exhalation**: expiration of air rich in CO_2 .

NOTE!!

- Inhalation and exhalation are known as respiratory movement.
- The aim of respiration is to enrich the body cells with O_2 and eliminate CO_2 and other waste products (water vapor)
- Respiration is ensured by the respiratory system.
- Respiratory System: group of organs which allow the circulation of air inside the body and the exchange of respiratory gases.

Respiratory System

1. Organs of Respiration 2. Respiratory passage

1. Organs of Respiration:

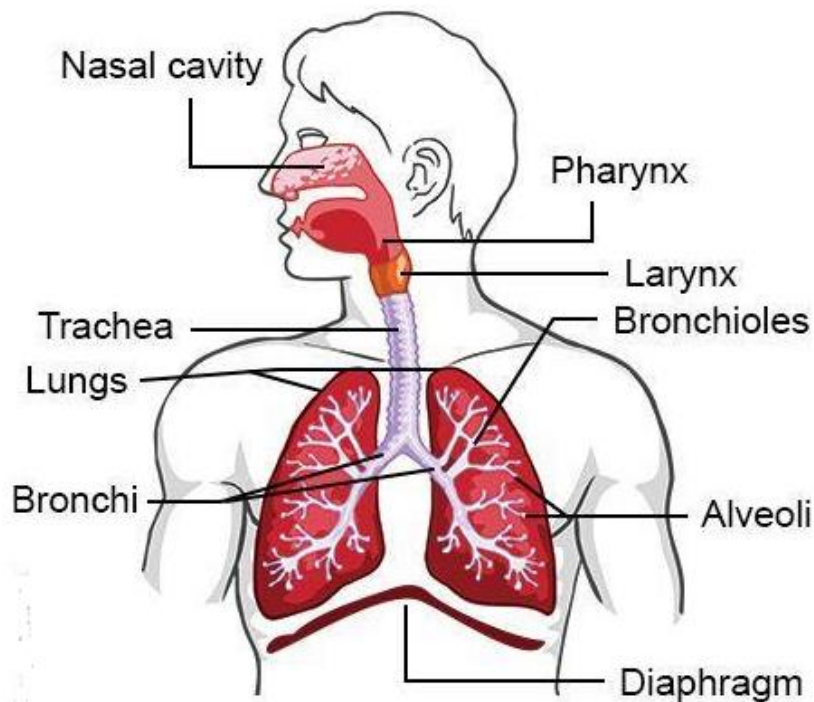
Two **lungs** protected by the rib cage.

Lungs are made up of millions of air sacs (alveoli)

2. Respiratory Passage (pathway):

Nose → pharynx → larynx → trachea →
bronchus → bronchiole → alveolus(alveolar sac).

Title: a diagram illustrating the pathway of the inhaled air.



NOTE!!!

- The lungs are surrounded by the rib cage for protection.
- Each lung is covered by a thin membrane known as pleural membrane which also protects the lungs.
- The left lung is slightly smaller than the right lung due to the presence of the heart.
- The left lung is made up of 2 parts (lobes) while the right lung is made up of 3 lobes.

Characteristics of the lungs:

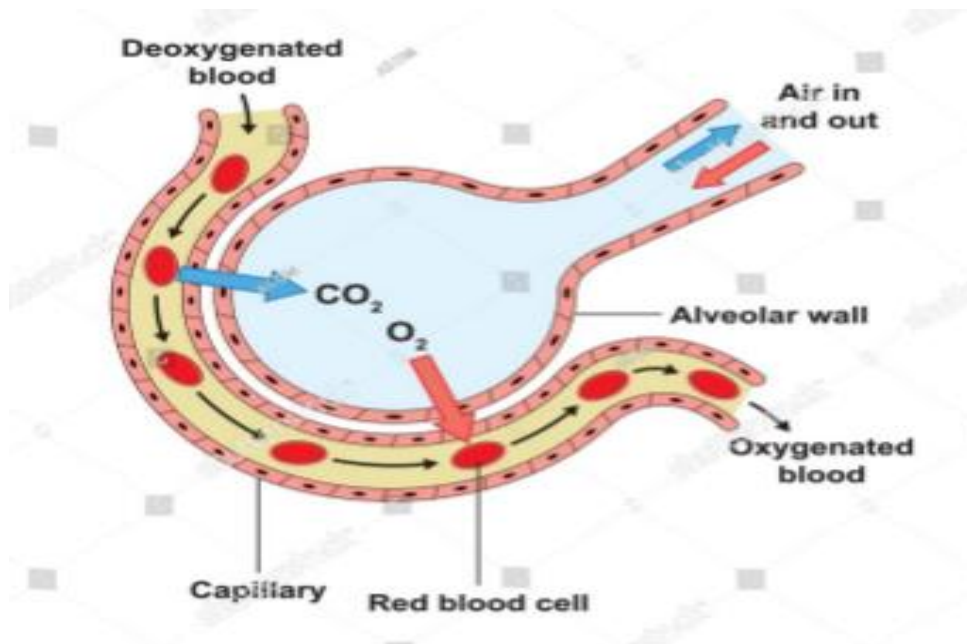
The lungs are:

- ✓ Pink in color.
- ✓ Spongy (has many spaces)
- ✓ Elastic (flexible)

REMARK!!!

- Air circulates inside the bronchiole which opens in an air sac (alveolus).
- The exchange of respiratory gases occurs at the level of the alveoli.

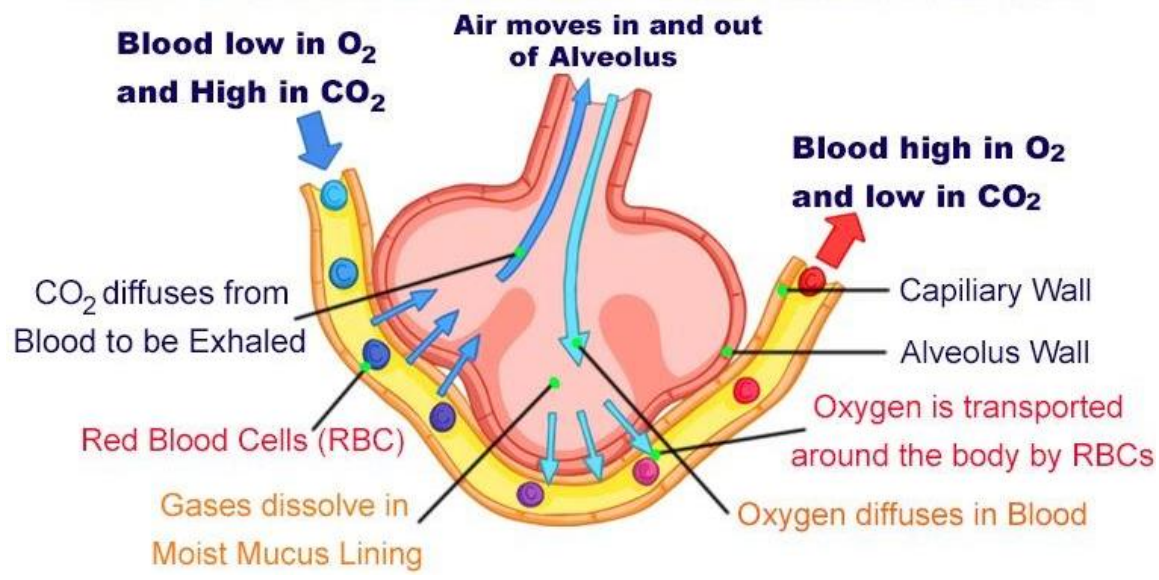
Title: Document showing the structure of alveoli.



Characteristic of alveoli which favors the gas exchange between air and blood:

- ✓ They are numerous (large in number) to ensure a long surface area for exchange and a large surface of contact between the blood and air.
- ✓ They have a very thin wall to facilitate the exchange of gases.
- ✓ They are highly vascularized (rich on blood capillaries) to ensure exchange between blood and air.

Title: a diagram illustrating the gas exchange taking place at the level of pulmonary alveolus between air or blood.



NOTE!!!

- Diffusion is the movement of particles from a medium of high concentration to a medium of low concentration.
- O_2 and CO_2 are exchanged through the process of diffusion.
- Blood entering the lungs is rich in CO_2 .
- CO_2 gas will diffuse from the blood (high concentration) to the alveolus (low concentration).
- O_2 gas will diffuse from the alveolus (high concentration) to the blood (low concentration).
- The blood leaving the lungs will be enriched with O_2 gas.

- Inhaled air (which enters the lungs (alveolus)) has a high concentration of O_2 gas.
- Exhaled air (which leaves the lungs (alveolus)) has a high concentration of CO_2 gas.

Indicate the site of gas exchange at the level of the lungs.

At the level of alveoli.