Biology Grade 9

CHAPTER 2: RESPIRATION

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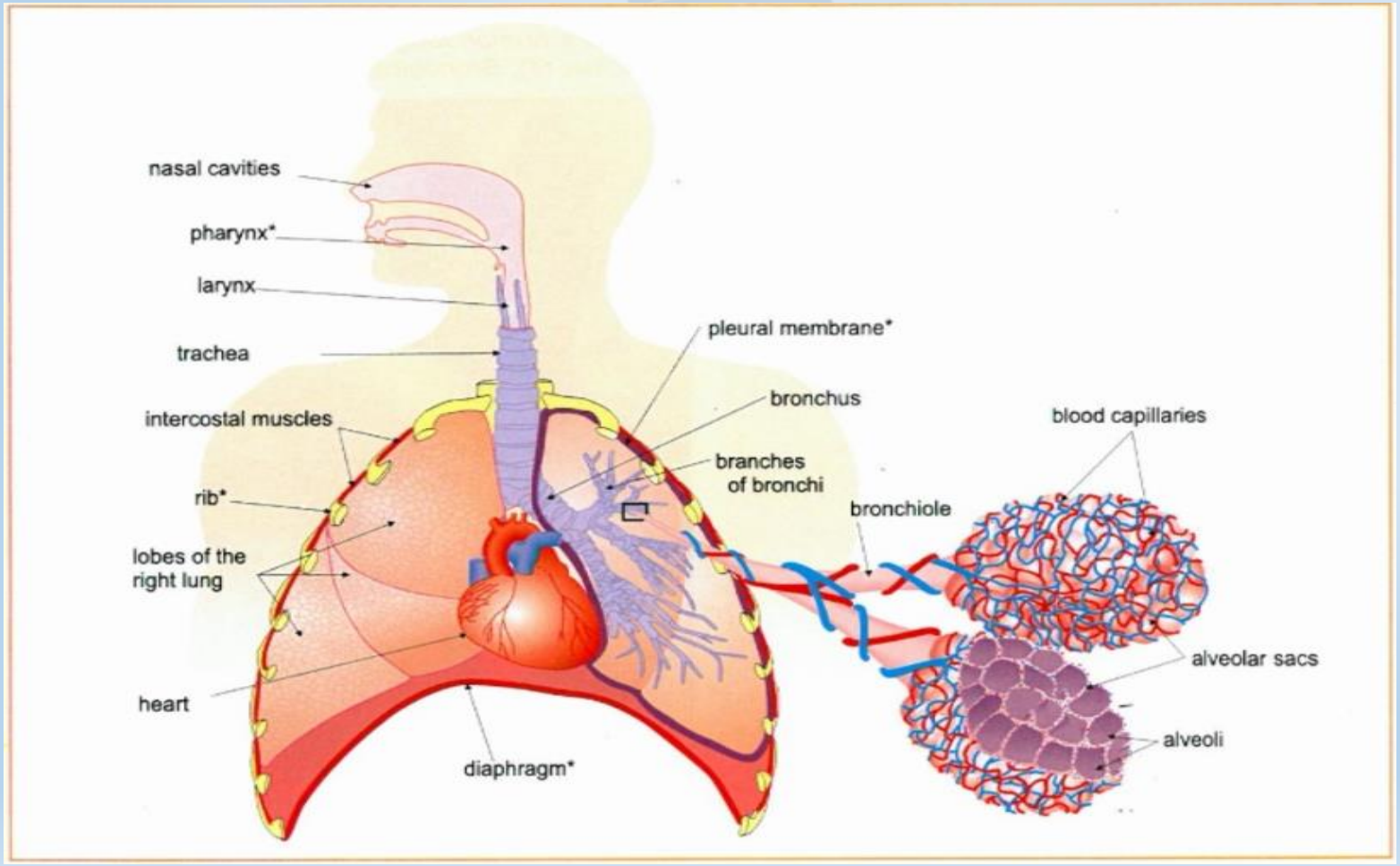
Activity 1: Organization of the Respiratory System

❖ Review:

- Respiration is vital process in all living things.
- It consists of absorption of oxygen (inhalation) and release of carbon dioxide (exhalation).
- Respiration is manifested by rhythmic movements: inhalation and exhalation.
- These respiratory movements ensure the supply of oxygen and elimination of carbon dioxide in a continuous manner.

❖ The Respiratory System:

- The respiratory system is the set of organs which allow the circulation of air and the gas exchange between the body cells and external environment. It consists of two parts: the **respiratory passage ways (or conducting zone)** and **two lungs (or respiratory zone).**



❑ **Pathway followed by air:**

Nasal cavity → pharynx → larynx → trachea → bronchus → bronchioles → alveoli.

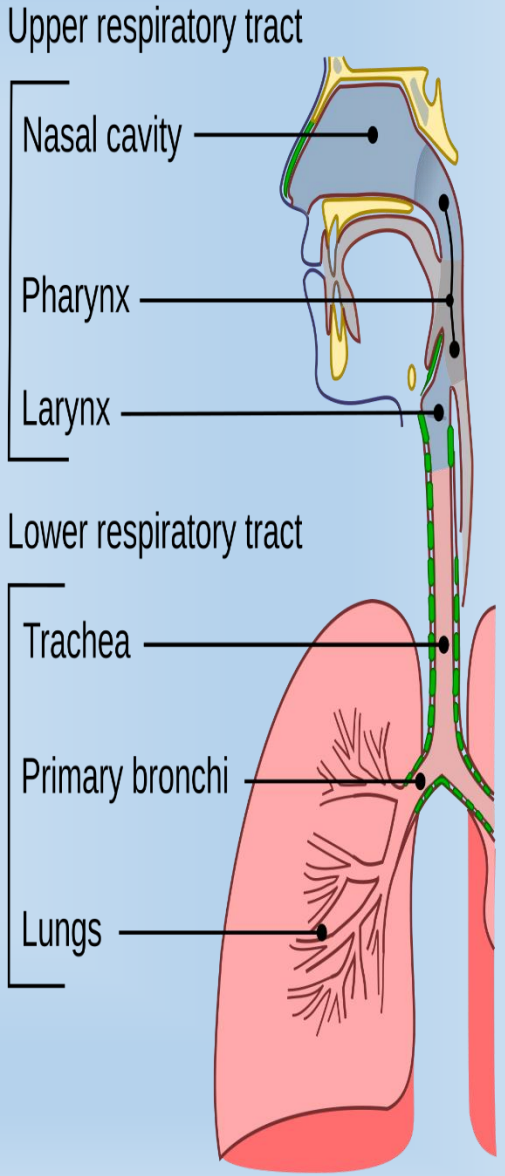
❑ **Unit of respiration is alveolus which allow the exchange of respiratory gases (give oxygen to blood and take carbon dioxide from it).**

1. State the different respiratory passage ways during inhalation.

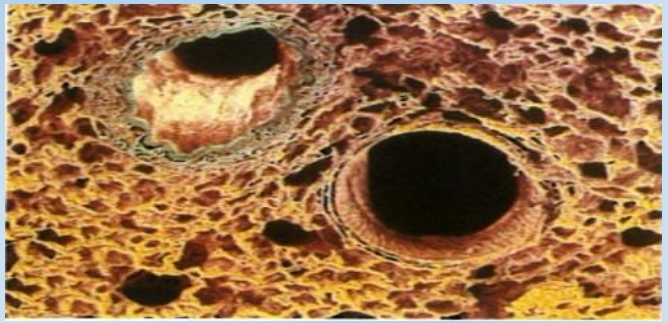
- The respiratory passage ways during inhalation are: nasal cavity, pharynx, larynx, trachea, main bronchus (left and right), secondary bronchi (branches of bronchus), and bronchioles (tiny branches of bronchus) that ends up with a tiny air sacs called alveoli surrounded by blood capillaries.

2. List in decreasing order of diameter the different passage ways.

- Trachea, bronchus, bronchiole.



1. **“The lungs are spongy organs”.** Justify this statement by referring to the adjacent document.

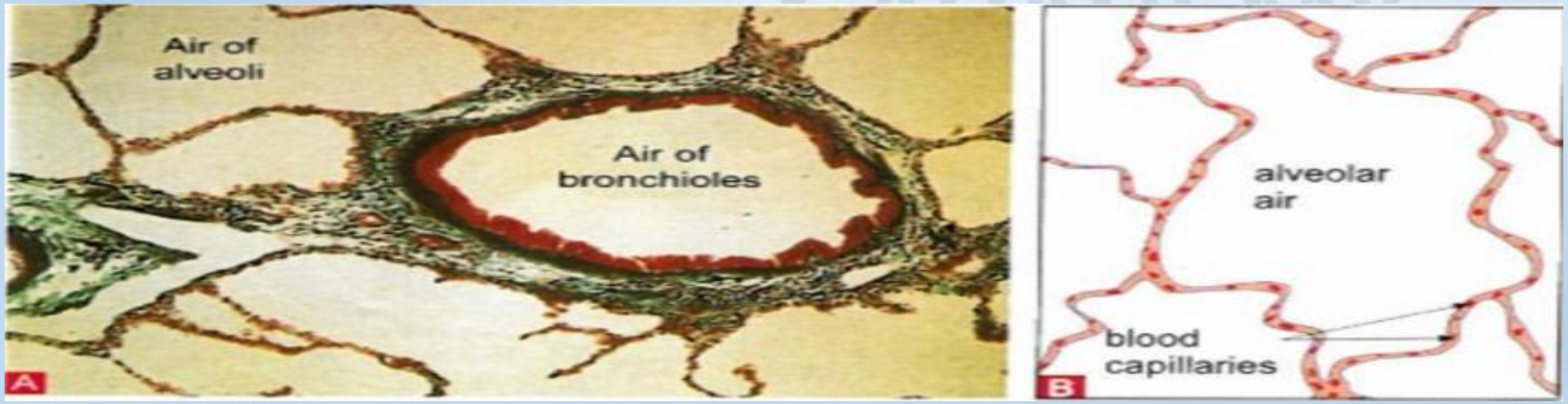


Pores and cavities are observed after cross sectioning of the lung at the level of bronchiole; therefore, the lungs are spongy structures.

A high magnification power of a cross section of a lung shows that alveoli are surrounded by blood capillaries.

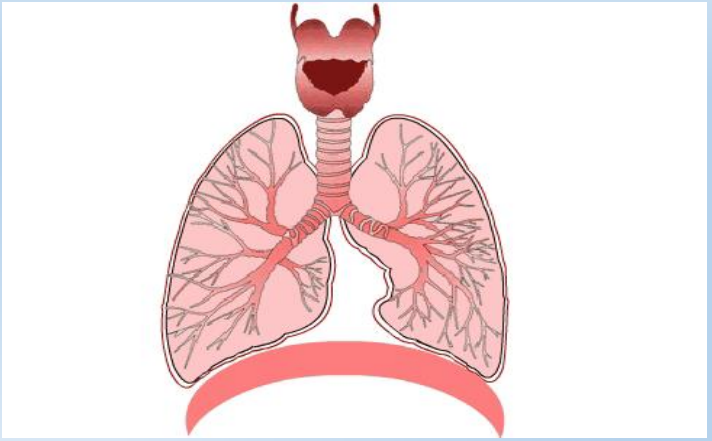
2. Indicate the sites of gas exchange in the lungs.

The sites of gas exchange are the alveoli.



3. State the physical characteristics of the two lungs.

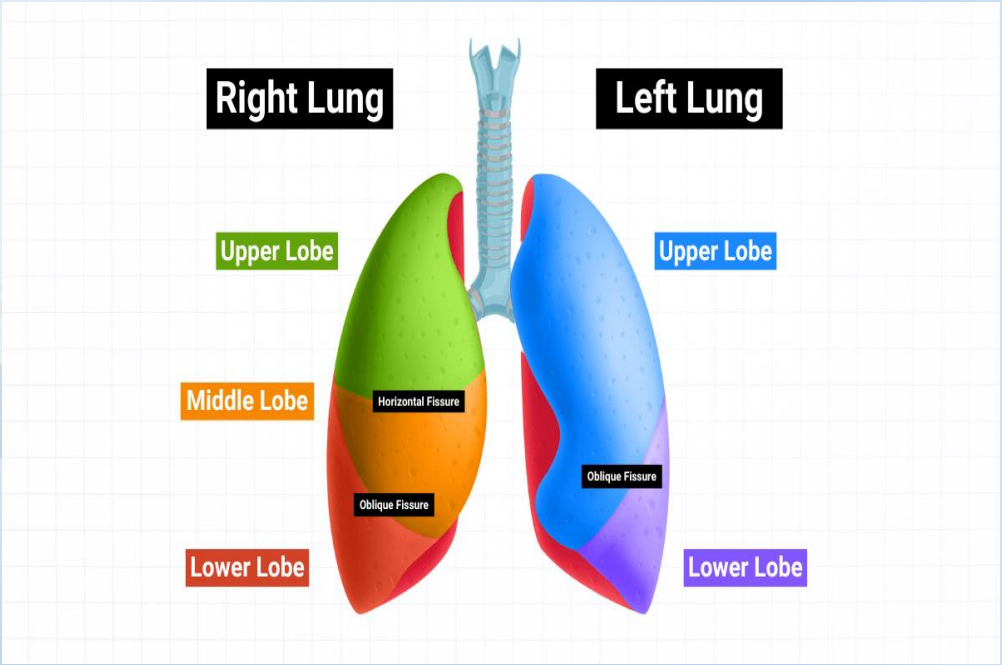
The two lungs are elastic and spongy pink colored structures.



4. **“The right lung is bigger than the left lung”.** Justify this statement.

The right lung is bigger than the left lung because the heart occupies most of its volume to the left side.

Right lung has 3 lobes and it is larger than left lung that has 2 lobes.



❖ Alveoli with their blood supply by capillaries:

List the characteristics of alveoli which make them a suitable medium for gas exchange.

1. Alveoli form a large surface area of contact between air in the lungs and blood.

2. Alveoli have very thin wall.

3. Alveoli are rich in blood capillaries.