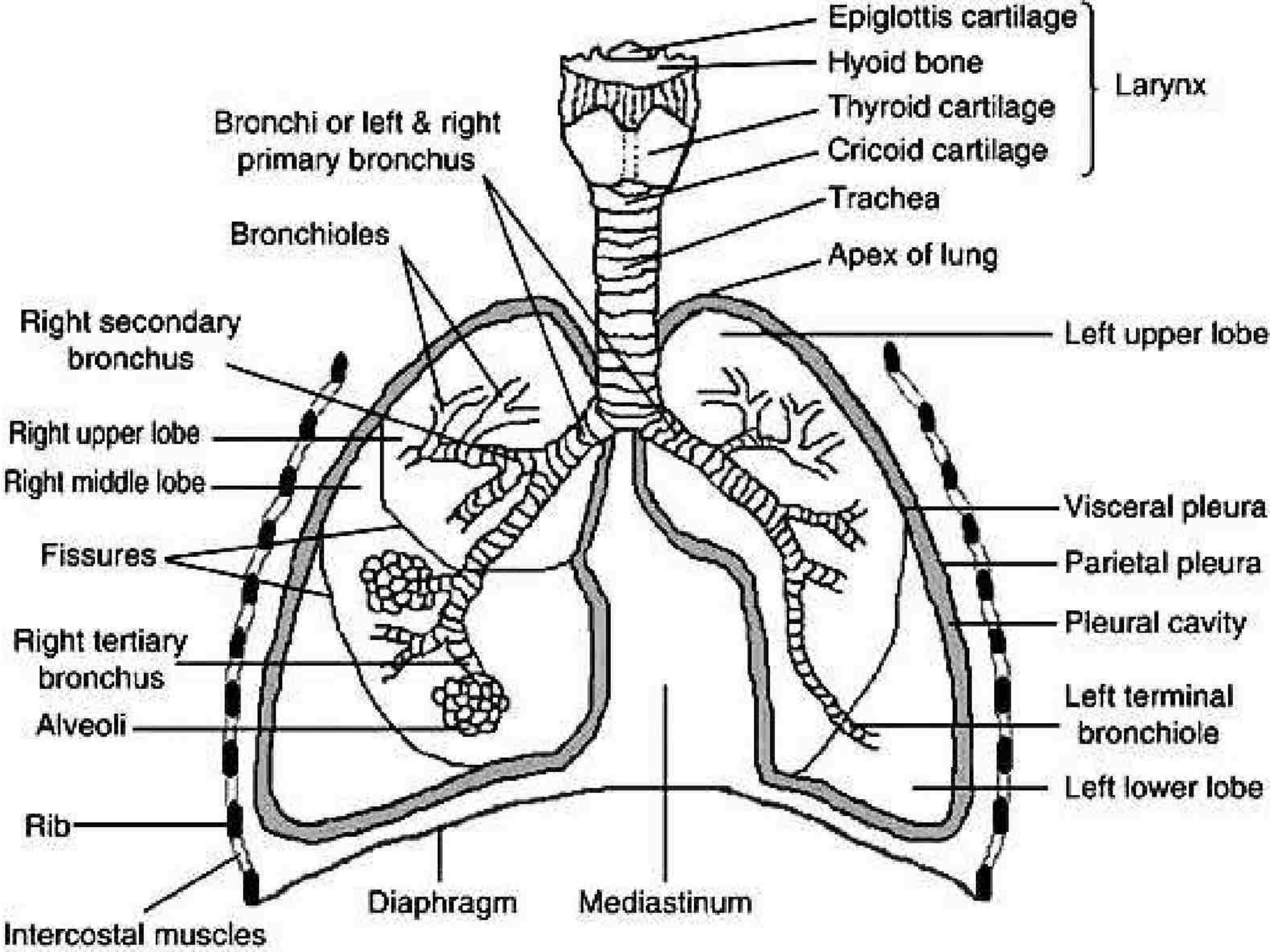

Epiglottis cartilage
Hyoid bone
Thyroid cartilage
Cricoid cartilage
Larynx
Bronchi or left & right primary bronchus
Trachea
Bronchioles
Apex of lung
Right secondary bronchus
Left upper lobe
Right upper lobe
Right middle lobe
Visceral pleura
Fissures
Parietal pleura
Pleural cavity
Right tertiary bronchus
Left terminal bronchiole
Alveoli
Left lower lobe
Rib
Diaphragm
Mediastinum
Intercostal muscles

3. Pleural (फुफ्फुसावरण कला)

→ The Pleural is a serous membrane. which forms a double layered Membrane covering around the lung.

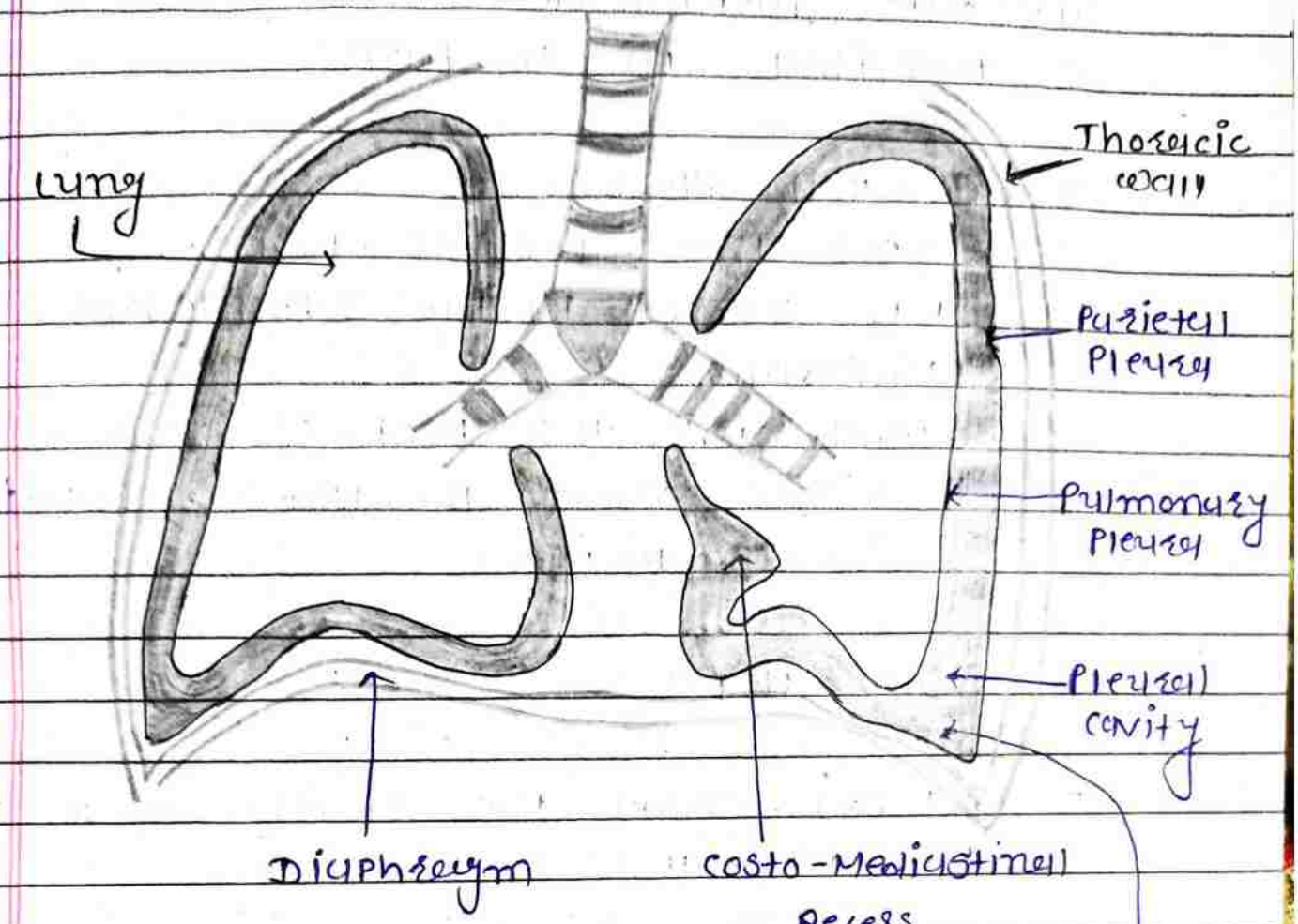
→ The capillary space b/w the two Pleural layers is known as the Pleural cavity and contains a thin layer of Pleural fluid.

→ These are two layers

i) outer layers - Parietal Pleural.
ii) Inner layers - Pulmonary Pleural.

Both layers are continuous with one another at the Root of lung.

2 Pleural sac, one on either side of the Mediastinum —



• Arrangement of Pleural Sacs in thorax •

i) Inner Pulmonary Pleura.
- It is firmly attached to the lung surface
- It covers the surface and fissure of the lungs, except except at the Hilum and along the attachment of the Pulmonary ligament where continuous with the Parietal Pleura.

Teacher's Signature.....

ii) outer Parietal Pleural.
- Described in 4 Parts.

1. cervical Pleural.
- covers the apex of lung.
  It is covered By the Supra Pleural Membrane.
- extend into the Root of Neck, 2-3 cm above the level of Medial 1/3rd of clavical.

2. costal Pleural.

- extends round the Inner surface of thoracic wall.

3. Mediastinal Pleural.
- covers the surface of Mediastinum.
- continous with costal and Diaphragmatic Pleurae.
- Around the Hilum

4. Diaphragmatic Pleural.
- covering thoracic surface of Diaphragm.

*. Recesses of Pleural.
- These are folds of Parietal Pleural which work as Reserve Spaces for the lung to expand during deep inspiration

Teacher's Signature.....

1) Costo - Mediastinal Recess

- It lies Anteriorly, behind sternum and costal cartilages, b/w the costal Mediastinal Pleurae.
- Cardiac Notch

2) Costo - Diaphragmatic Recess.

- It lies Inferiorly b/w the costal and Diaphragmatic Pleurae.

* Structure of Pleura —

- The Pleural Surface consist of Meso - thelium arranged on a basal lamina, under which is laminapropria formed of loose connective tissue.

⊛ Basal lamina is a thin, acellular layer of the extracellular Matrix Secreted By epithelial and endothelial cells —

* Blood, Nerve supply and vein, Lymph Drain –

Pleural	Arteries	Veins	Lymph Nodes	Nerves
1. Parietal Pleura.	- Inter costal, Inter thoracic arteries	- Azygos and Inter thoracic vein.	- Inter costal, Diaphragmatic Nodes.	- Inter costal and Pherenic Nerves.
2. Pulmonary Pleura.	- Bronchial arteries	- Bronchial veins	- Broncho-Pulmonary Nodes	- Sympathetic and vagus Nerves etc –

* Clinical significance –

1. Inflammation of Pleura → May lead to Fibrous Adhesion [(તંતુમય જોડાણ) બે Pleura ના Fibrous નું જોડાણું જ સામાન્ય રીતે જોડાયેલા હોતા નથી પણ Special condition માં જોડાય જાય છે b/w to 2 Pleural layer

2. Some disease → Filled with –
   - air (Pneumothorax), - blood (Haemothorax)
   - Fluid (Pleural Effusion), - Pus (empyema)

Teacher's Signature........

4. Lungs (फुफ्फुस)

[शारीरिक क्रिया प्रभाग : फुफ्फुस : 11]

→ The lungs are pair of large, spongy organs organized for gas exchange b/w blood and Air.

→ 2 lungs are separated By the Mediastinum

→ Each lung is covered By Pleural.

→ Shape :- conical

→ colour :- In the young :- brown or grey
:- after some years ~~with~~ black in colour, bcz carbon partical inhaled.

→ Weight :- Right lung : 620 gm
Left lung : 560 gm (bcz, Present cardiac Notch)

* External features -

→ Apex + base

→ 2 surface (costal and Medial)

i) Apex :- It extends upwards above :
:- 2.5 cm above the level of Medial 1/3rd of clavicle.
:- It covered By → cervical Pleura Supra Pleural Membrane and grooved By subclavian artery on the Medial Side and in front.

ii) Base :- It is Deeply concave
:- It Rests on the Diaphragm
:- Right base → Separated by Diaphragm, Right lobe of liver
:- Left base → Left Lobe of liver Fundus of Stomach, Spleen, colic Flexure.

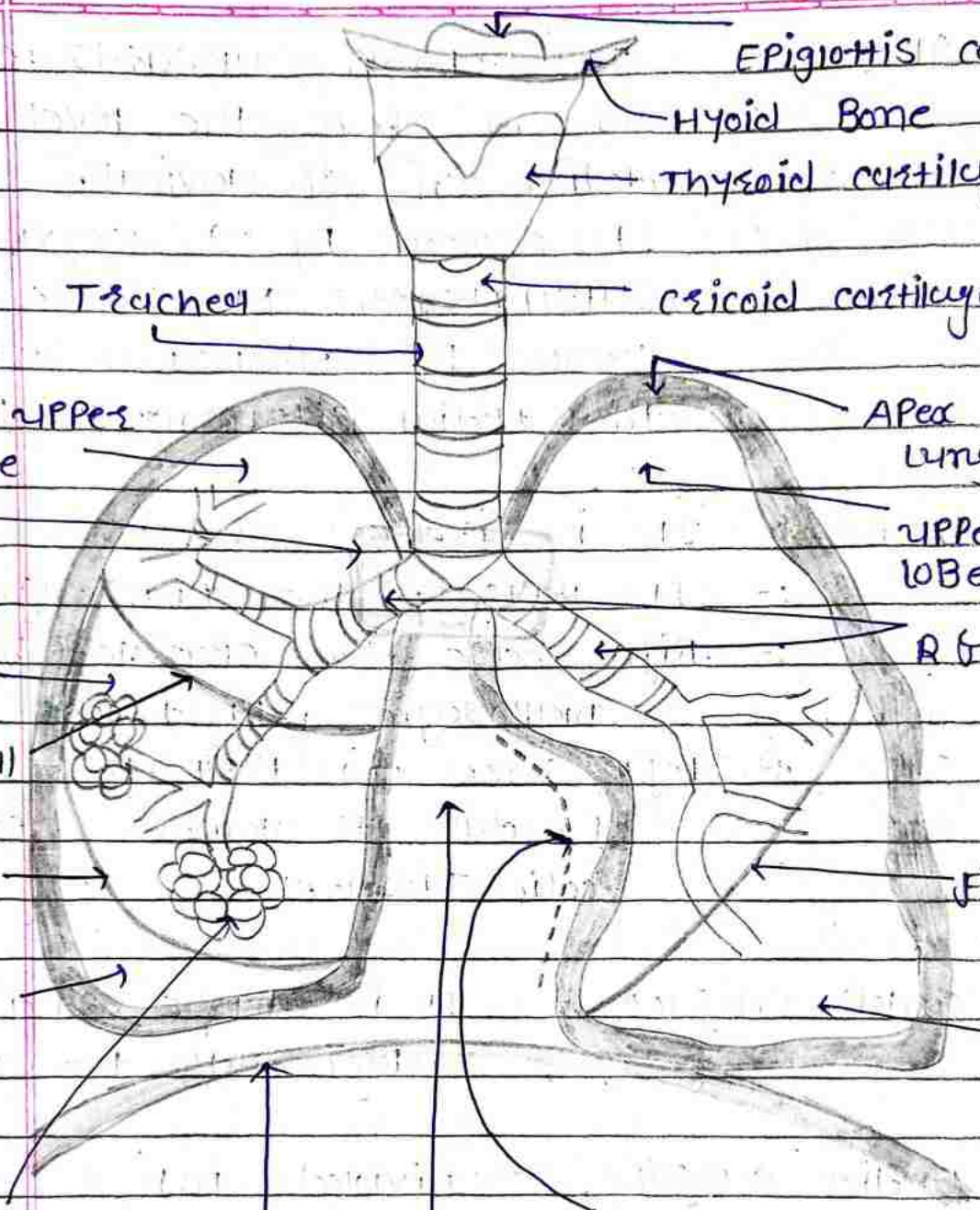
iii) costal surface :- It is large and convex.
:- contact with thoracic cavity.

iv) Medial Surface :- Divided into—

1) Posterior (Vertebral Part)
- Related to : Vertebral bodies with Intervertebral Discs, Posterior Intercostal vessels, Splenic Nerves.

2) Anterior (Mediastinal Part)
- Present Hilum
- Related to : Mediastinal Surfaces of the 2 Lungs are Different—

Teacher's Signature.....



[· Lungs ·]

Teacher's Signature.....

* Relations

i) Mediastinal surface of Right Lung	ii) Mediastinal surface of left lung.
1) Right atrium	1) left brachio cephallic vein.
2) Right ventricle	2) left Ventricle
3) Azygos vein	3) Arch of Aorta
4) Right Vagus Nerve.	4) Descending thoracic aorta
5) Trachea.	5) left Vagus Nerve.
	6) left Subclavian A.

* Borders

- Anterior :- It is sharp
  :- Right side is complete
  :- Left side is short Inferiorly to form cardiac Notch.
- Posterior :- It is thick and Rounded.
  :- extending C7 to T10.
- Inferior :- It is thin and sharp.
  :- Separates the base from costal and Medial surfaces.

Teacher's Signature.....

* Fissures and lobes -

→ The lung fissures are divisions from the surface to the Hilum of lung which divide into lobes.

→ Right lung - 2 fissure and (दाहिना) - 3 lobe (Sup. ; Inf. Mid.)

→ Left lung - 1 fissure and (बायां) - 2 lobe (Sup. and Inf.)

→ Oblique fissure present ~~left~~ Right lung pass obliquely, downwards and forwards

→ Horizontal fissure present Right lung. extending from anterior borders to oblique fissure.

→ Lingula :- It is tongue shaped part of left lung below the cardiac Notch.

* Broncho-Pulmonary Segment

→ It is a portion of lung supplied by a tertiary bronchus (Segmental bronchus)

Teacher's Signature.....

* Hilum of lung

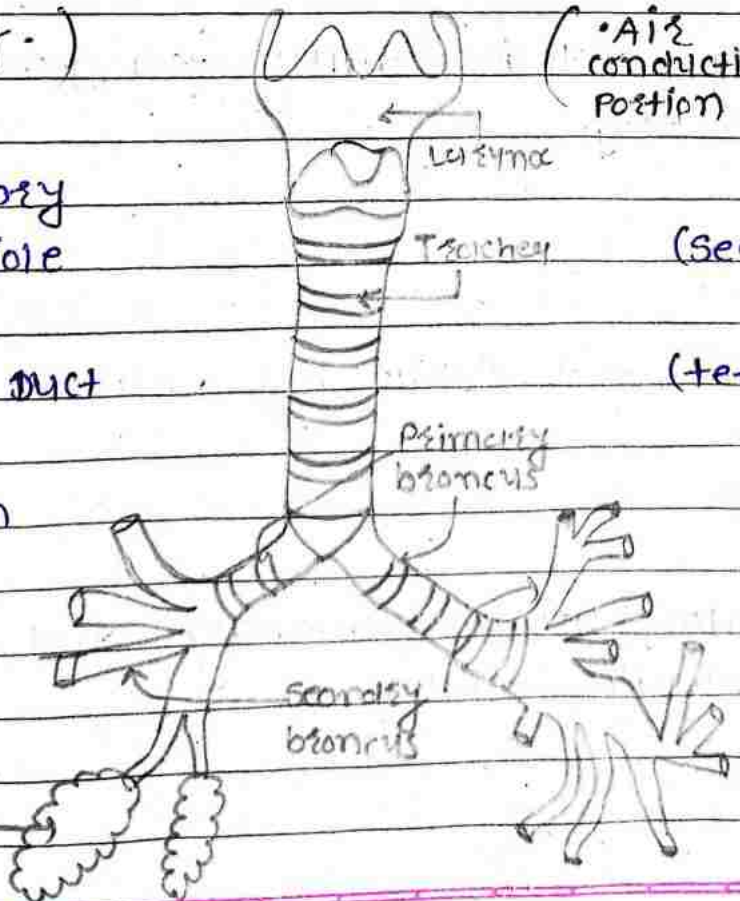
→ It Present Medial Surface of the lung.
→ Root of lung —

1) - one Principal bronchus (In left Root)
   - eparterial & Hyparterial bronchi (In Right Root)
2) Pulmonary artery.
3) Superior and Inferior Pulmonary vein.
4) Bronchial artery and veins.
5) Pulmonary Nerve Plexuses
6) Lymph vessels and Lymph Nodes.

* Bronchial tree (श्वसनी तरु)

(Respiratory Portion)

Respiratory bronchiole
↓
alveolus duct
↓
atrium
↓
alveolus sac
↓
alveolus



(Air conducting Portion)

trachea
↓
Principal bronchus
↓
(Secondary) Lobar bronchus
↓
(tetiary) Segmental bronchus
↓
terminal bronchus
↓
tubular bronchiole
↓
terminal bronchiole

Teacher's Signature.....

* Microscopic structure of lung.

→ consists of two main zone
i) conducting zone.
ii) Respiratory zone.

→ The Pulmonary alveolus is a spherical sac with 250 µm. in diameter. where exchanges of Respiratory gases b/w air and blood occurs.

* Arteries

1) Main is Bronchial artery - supply to oxygenated blood to the lungs

2) Pulmonary arteries supply deoxygenated Blood to lung.

* Veins

→ Bronchial and Pulmonary veins.

* Lymphatic

→ Drain into bronchopulmonary and tracheobronchial nodes

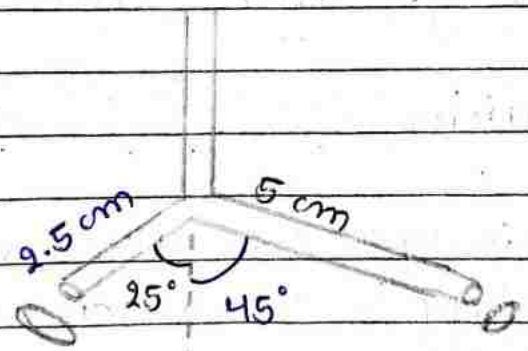
* Nerves

Teacher's Signature.....

→ Parasympathetic Nerves - from the Vagus.
→ Sympathetic Nerves - 2nd to 5th Sympathetic ganglia.
→ through the Pulmonary Plexuses.

* Clinical Significance -

1) Foregin bodies entered in the trachea mostly pass in the right bronchus because it is wider and more vertical then the left bronchus.



Big Lumen Small Lumen

- this cause more Infection in Right lung.

2) Bronchial Asthma :- Difficulty in breathing.
- It is condition due to bronchospasm

[* Spasm of Bronchial Smooth Muscles, Producing Narrowing of the bronchioles]

3) COPD

Teacher's Signature.....