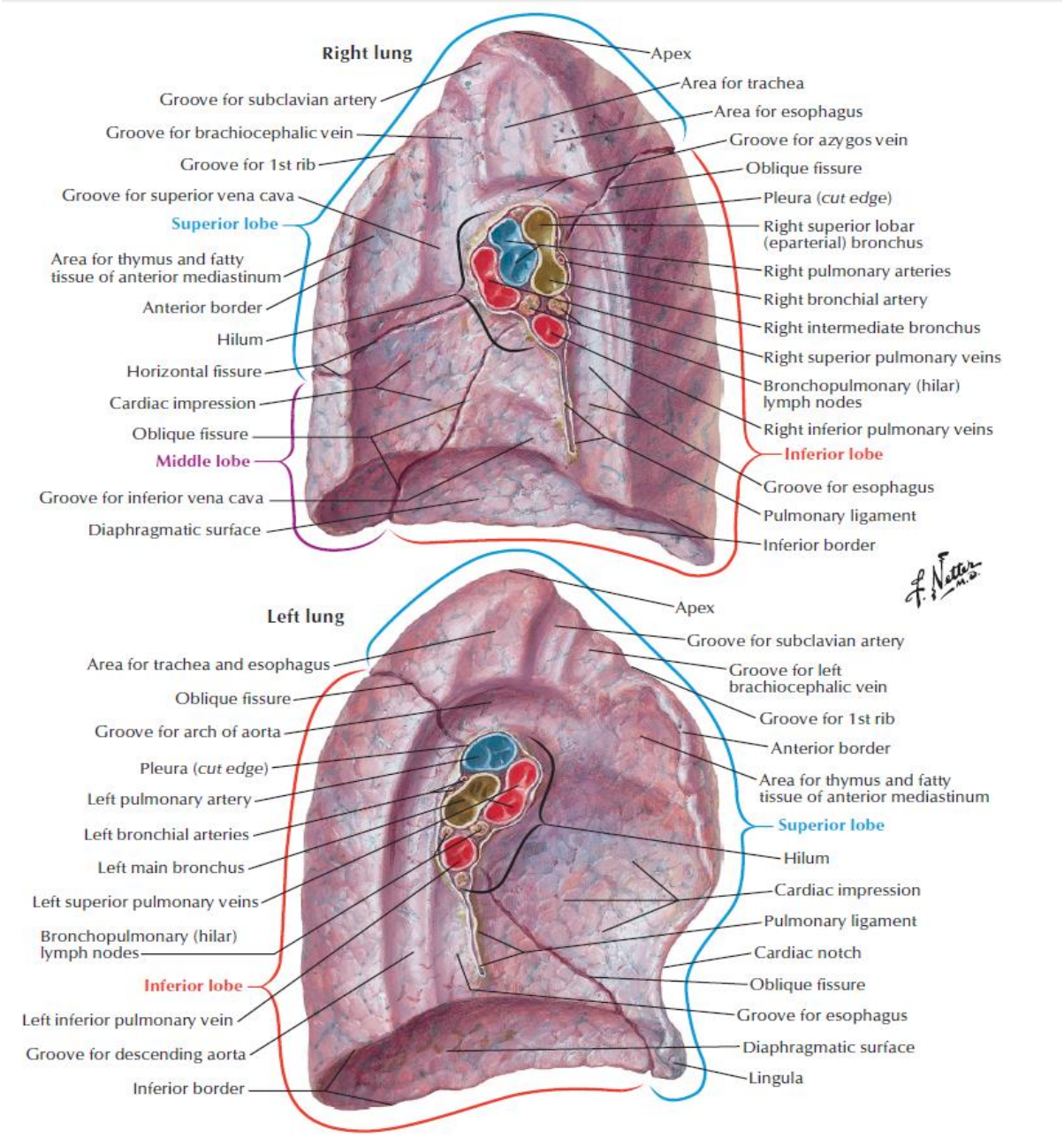
THE CHEST

Lungs

- Each lung is conical, covered with visceral pleura, and suspended free in its own pleural cavity, being attached to the mediastinum only by its root (hilum).

- The **anterior border** is thin and overlaps the heart; it is here on the left lung that the **cardiac notch** is found. The posterior border is thick and lies beside the vertebral column.



The contents of hilum:

1. Bronchi.
2. Pulmonary artery and vein.
3. Bronchial artery and vein.
4. Lymphatics.
5. Nerves.

Lobes and Fissures:

Right Lung:

→ The right lung is slightly larger than the left and is divided by the oblique and horizontal fissures into three lobes: the **upper, middle,** and **lower lobes**.

→ The middle lobe is bounded by the horizontal and oblique fissures.

Left Lung:

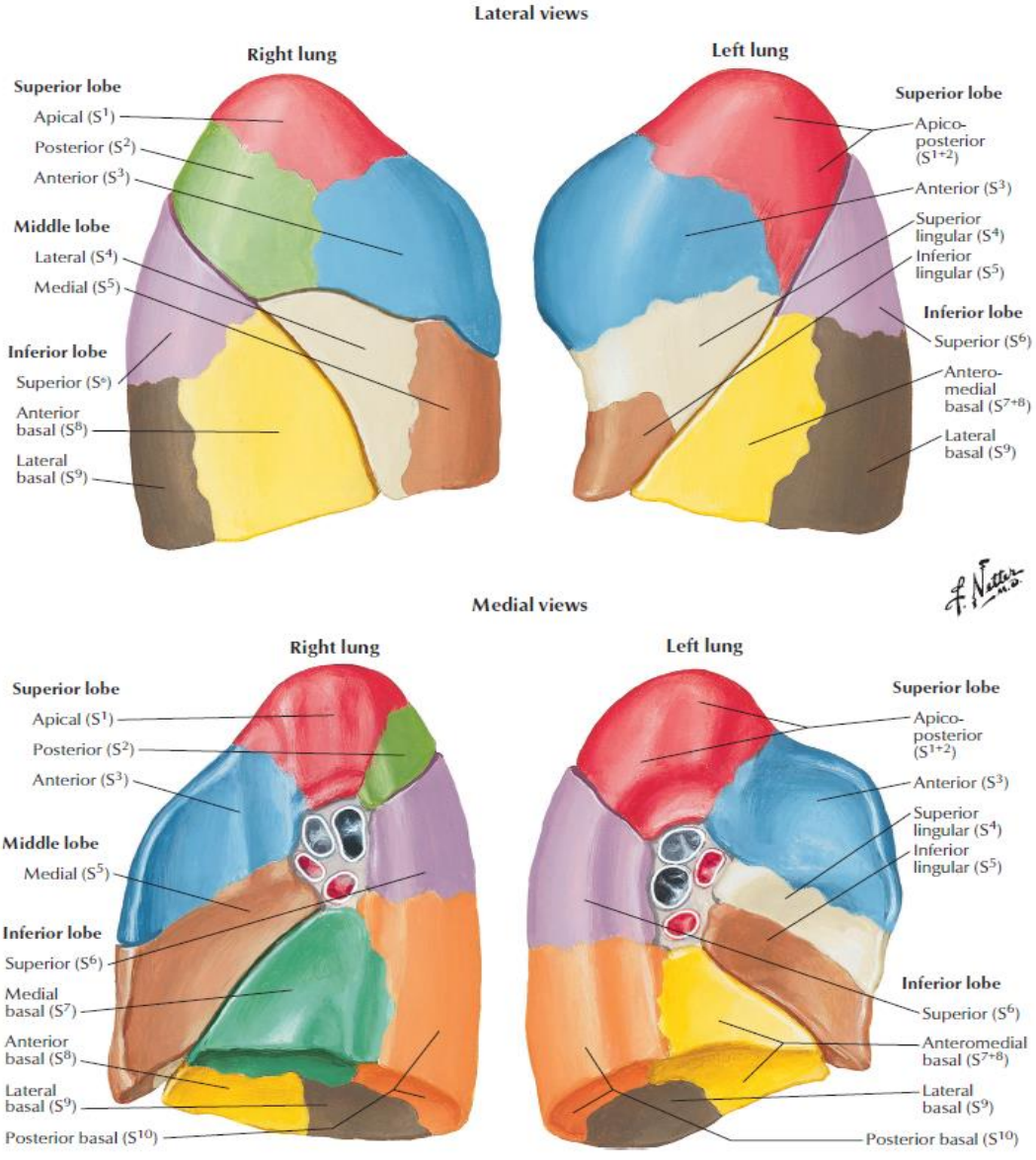
→ The left lung is divided by a similar oblique fissure into two lobes: the **upper** and **lower lobes**. There is no horizontal fissure in the left lung.

Bronchopulmonary Segment:

It is pyramid shaped, with its apex toward the lung root. It is surrounded by connective tissue. It has a segmental bronchus, a segmental artery, lymph vessels, and autonomic nerves. The segmental vein lies in the connective tissue between adjacent bronchopulmonary segments.

- The bronchopulmonary segments are the anatomic, functional, and surgical units of the lungs.
- Each lobar (secondary) bronchus, which passes to a lobe of the lung, gives off branches called **segmental (tertiary) bronchi**.
- Each segmental bronchus passes to a structurally and functionally independent unit of a lung lobe called a **bronchopulmonary segment,** which is surrounded by connective tissue.

- The bronchioles then divide and give rise to **terminal bronchioles** lead to **respiratory bronchioles.**
- The respiratory bronchioles end by branching into **alveolar ducts,** which lead into tubular passages with numerous thin-walled outpouching called **alveolar sacs** which contain several alveoli opening into a single chamber.
- Each alveolus is surrounded by a rich network of blood capillaries. Gaseous exchange takes place between the air in the alveolar lumen through the alveolar wall into the blood within the surrounding capillaries.



The main bronchopulmonary segments are as follows:

Right lung:

1. **Superior lobe:** Apical, posterior, anterior
2. **Middle lobe:** Lateral, medial
3. **Inferior lobe:** Superior (apical), medial basal, anterior basal, lateral basal, posterior basal

Left lung:

1. **Superior lobe:** Apical, posterior, anterior, superior lingular, inferior lingular
2. **Inferior lobe:** Superior (apical), medial basal, anterior basal, lateral basal, posterior basal

The **root of the lung** is formed of structures that are entering or leaving the lung. It is made up of the bronchi, pulmonary artery and veins, lymph vessels, bronchial vessels, and nerves.
The root is surrounded by a tubular sheath of pleura, which joins the mediastinal parietal pleura to the visceral pleura covering the lungs.

Blood Supply of the Lungs:

- The bronchi, the connective tissue of the lung, and the visceral pleura receive their blood supply from the bronchial arteries, which are branches of the descending aorta.
- The bronchial veins (which communicate with the pulmonary veins) drain into the azygos and hemiazygos veins.
- The alveoli receive deoxygenated blood from the terminal branches of the pulmonary arteries.
- The oxygenated blood leaving the alveolar capillaries drains into the tributaries of the pulmonary veins. Two pulmonary veins leave each lung root to empty into the left atrium of the heart.