Thorax

- Upper part of trunk separated from abdomen by diaphragm
- Contains main organs of respiration (pair of lungs) & circulation (Heart) – Thoracic Cavity
- Supported by oseo-cartilaginous elastic framework (Thoracic cage)
- Designed for increasing & decreasing intra-thoracic pressure
In transverse section

- Bean or kidney shaped
- Transverse Dia > A.P. diameter
- Reverse in quadrupeds

In coronal section

- Truncated cone, narrow above (Thoracic inlet) & wider below (Thoracic outlet)

Circular in children (below 2 yrs.)
Thoracic Cage - Formation

Bony Framework of Thorax
Anterior View

Bony Framework of Thorax
Posterior View
**Sternum**

**Parts**
- Manubrium Sterni
- Body
- Xiphoid process

**Other features**
- Suprasternal notch (jugular)
- Interclavicular notch
- Facet for clavicle
- Sternal angle (angle of Louis)
- Facet for costal cartilages
Thoracic Vertebra (12)

- Body - anteriorly
- 7 processes

Feature for identification

Costal facets on body

2-8 – typical

1st & last 4 are atypical
Ribs

- 12 pair, Bony arches placed obliquely & arranged one below the other
- Gaps in b/w called intercostal spaces (11)
Ribs

- First seven connected anteriorly to lateral side of sternum through their costal cartilages called **true (vertebrosternal) ribs**
- Rest 5 are **false ribs** of which 8th, 9th & 10th Joined to each other **(vertebrochondral ) ribs**
Ribs

• Anterior end of 11\textsuperscript{th} & 12\textsuperscript{th} are free (Floating) ribs

• First two & last 3 has special features (Atypical) rest 3 – 9 (Typical ribs)
Ribs

Bony Framework of Thorax
Posterior View

Parts of Rib
Two Ends –
Ant.(sternal) & Post(vertebral)
Head with two facets (upper small &
Lower large

Neck
Tubercle
Shaft with costal groove
Thoracic Vertebrae [T7-T9] - Assembled
Posterior View

Costovertebral Joints
Right Posterolateral View

Costovertebral Joints
Left Lateral View
Thoracic inlet

Boundaries

- **Anterior** – upper border of Manubrium sterni (T3 – Upper)
- **Posterior** – Superior surface of body of T1(Upper)
- **On each side** – first rib with its cartilage

Dimensions

- Transverse dia – 4-5 inches
- Anteropost. dia – 2-2.5 inches
• Slope – ant. Part 1.5 cm below than post. Part ant. Part lies at T3(U)
• Obliquity approx 45 degree
Supra Pleural Membrane

- Triangular in shape
- Apex attached to tip of tr. Process of C7
- Base to inner border of the first rib & its cartilage
- Functionally provides rigidity to thoracic cage
- Inferior surface is fused to cervical pleura
- Superior surface is related to subclavian vessels & other structures of root of neck
Fascial Layers of Neck
Cross Section
Thoracic Inlet

In median plane
- Sternohyoid, sternothyroid, remains of Thymus, inferior thyroid veins, trachea, oesophagus, left recurrent laryngeal nerve, ant. Longitudinal. Ligament of vertebral column, longus coli muscle

On right side

On left side
Inferior aperture (outlet)

- Broad lower end of thorax surrounding upper part of abdominal cavity & is separated by diaphragm

**Boundaries**

- **Anterior** – infrasternal angle between two costal margins
- **Posterior** – inferior surface of body of T12
- **On each side** – costal margins formed by cartilages of 7th, 8th, 9th & 10th ribs & 11th, 12th ribs
3 Large openings

• Aortic – T12
• Oesophageal – T10 – in muscular part
• Venacaval – T8 – in central tendon
Phrenic Nerve
Schema
Thoracic Cavity

- Mediatinum
- Pair of pleural cavities
Trachea and Major Bronchi
Anterior View
Esophagus in Situ
Opened Right Atrium
Right Lateral View
Opened Right Ventricle
Anterior View
Diaphragm
Thoracic Surface