CARDIOVASCULAR SYSTEM

EMBRYOLOGY

- Lecture 1 (formation of heart tube)
    - Fate of cardiogenic cells
    - Formation of heart tube and positioning
    - Formation of cardiac loops

- Lecture 2 (formation of venous end and septae)
    - Development of sinus venosus
    - Inter atrial septum formation
    - Inter ventricular septum formation

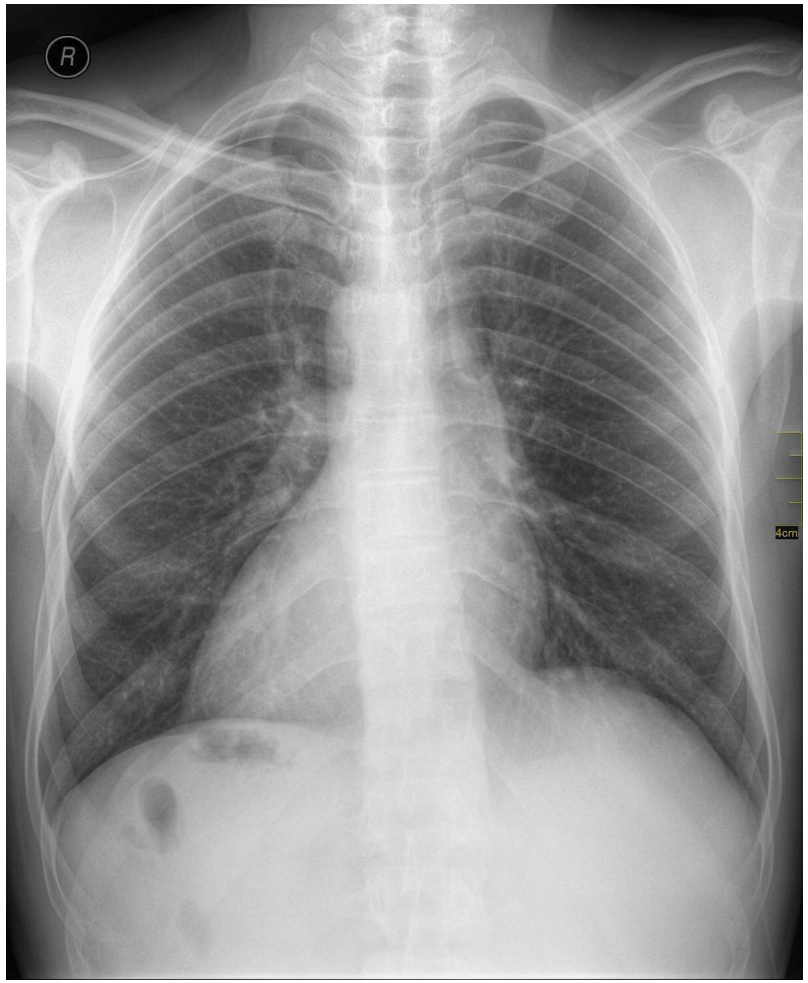
- Lecture 3 (formation of septae)
    - Septum formation in atrio-ventricular region
    - Septum formation in conotruncal region
    - Valve formation

- Lecture 4 (formation of vascular system)
    - Basis of vascular development
    - Development of arterial system
    - Development of venous system

- Lecture 5
    - Fetal circulation
    - Circulatory changes after birth
    - Development of lymphatic system

CASE 1

- 23 yrs old Saman has been asked to take a chest x-ray for a medical check up of his job

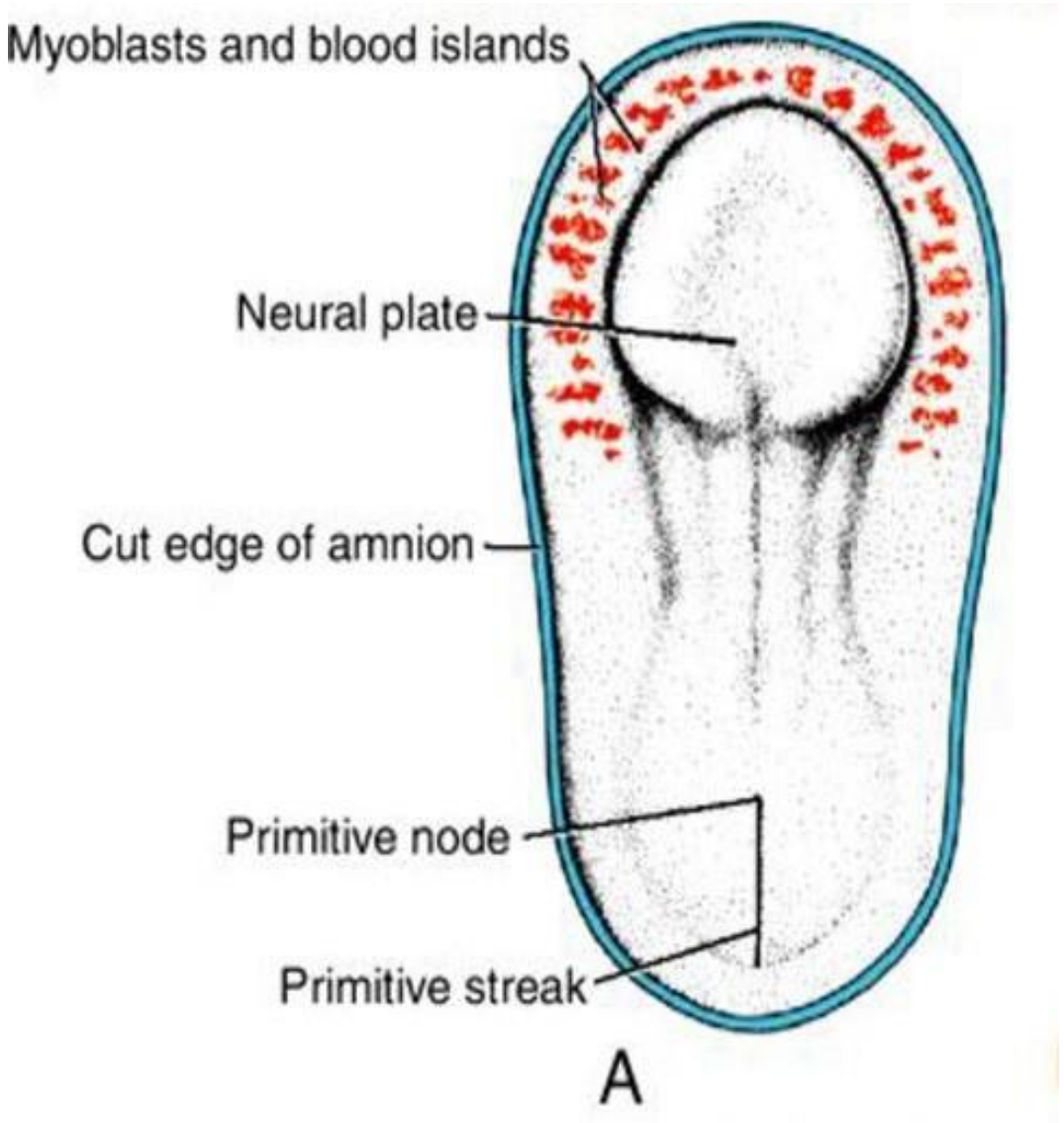


- What is the problem you observe?
- What are the other changes you would like to look for?

CASE 2

- Three weeks old baby was taken to a GP as parents have notice purplish discoloration of his tongue while crying?
- What is the problem?
- What is/are the probable diagnosis?

Position of Cardiogenic Field in Trilaminar Germ Disc



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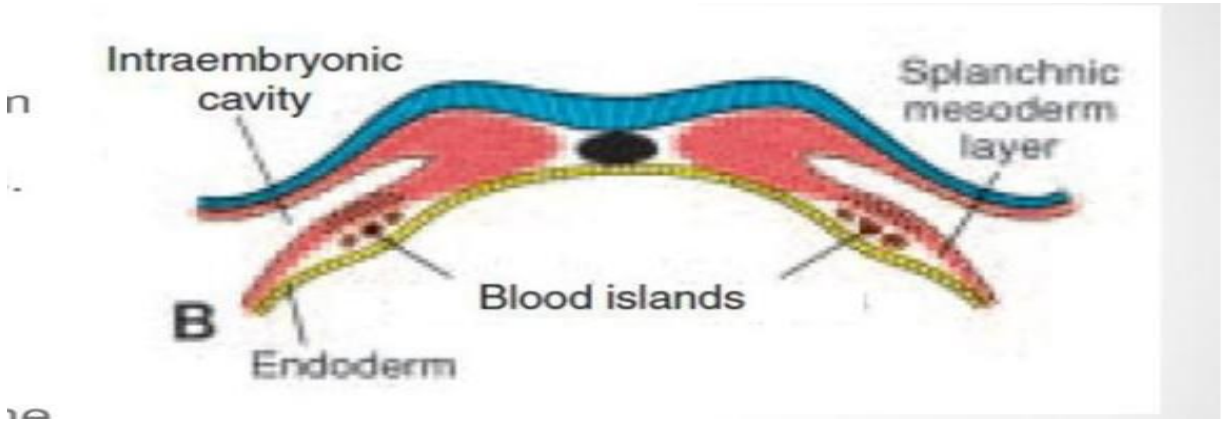
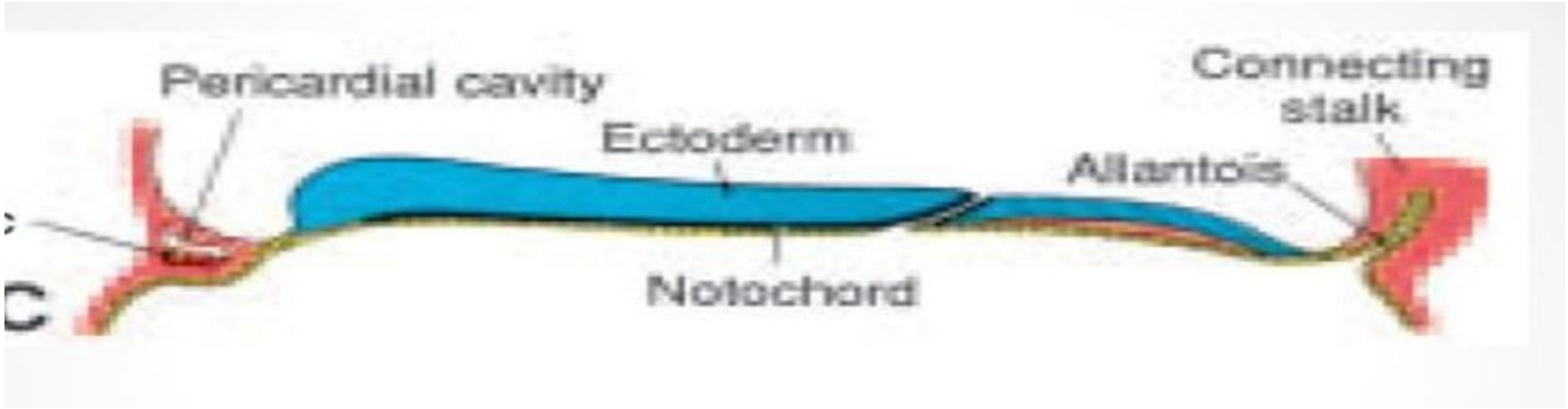
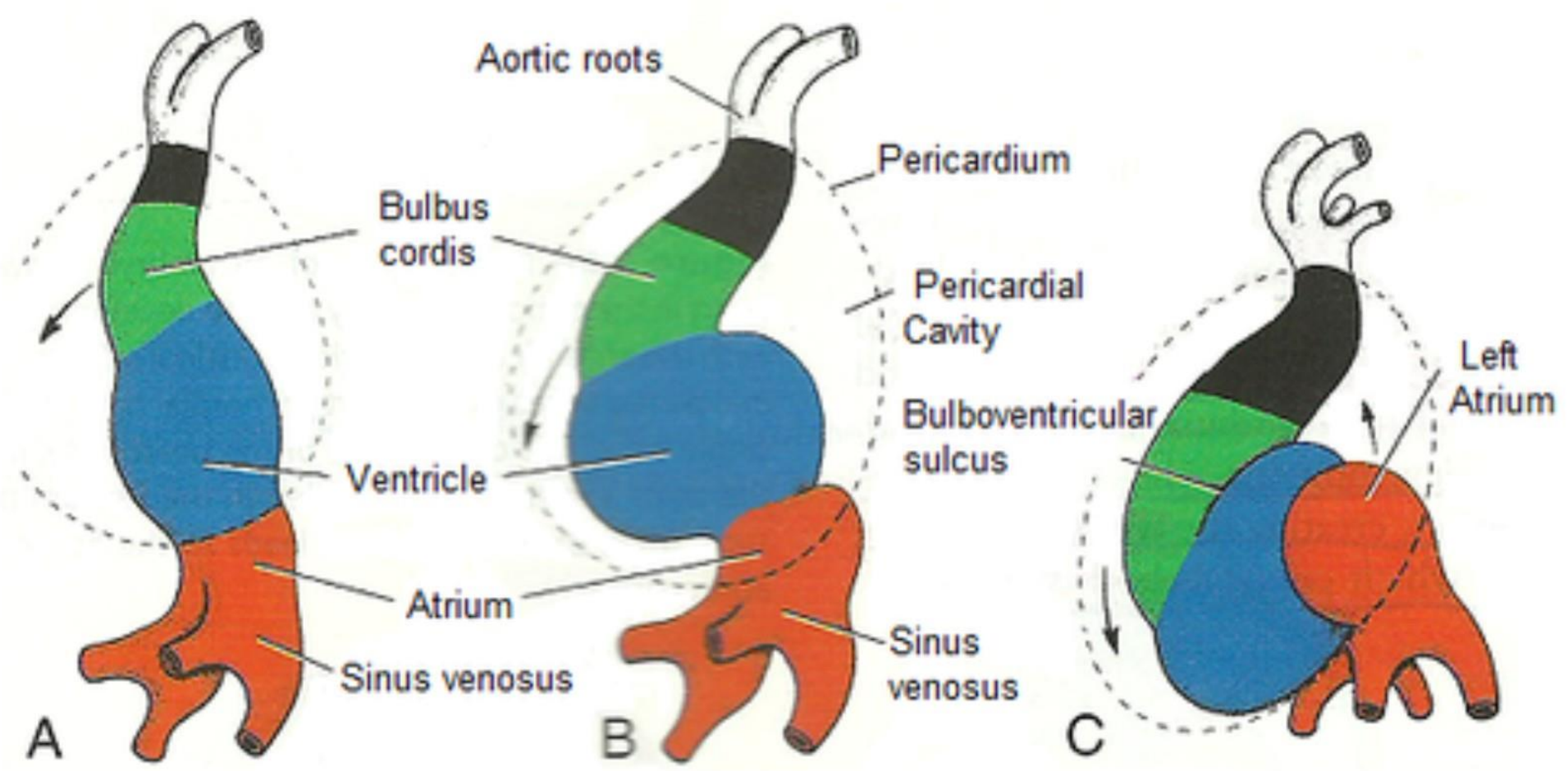




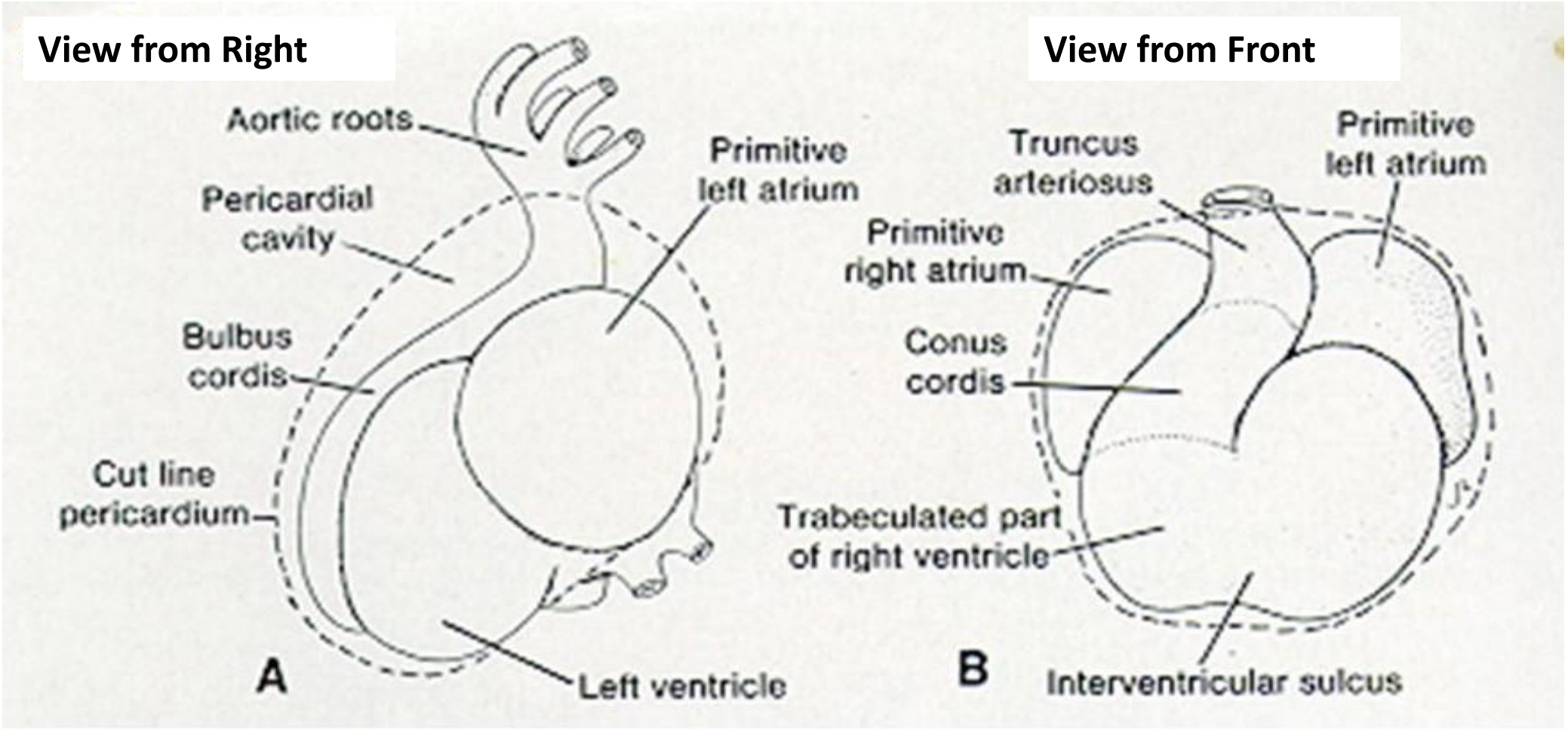
Formation of Cardiac loop

- Bending of cardiac tube begins at the day 23 and ends at day 28
- Bending is due to changes in cell shapes and elongation of the tube
- Cephalic part (out flow tract)
  - Bends ventrally, caudally and to right
- Caudal part (atrial part)
  - Bends dorsally, cranially and to left

Cardiac Loop Formation



Cardiac Loop Formation



- Expansions appear in the cardiac tube
  - -Bulbus cordis
  - -Ventricle
  - -Atrium
  - -Sinus Venosus
- Paired atrial parts join to form common atrium
- Common atrium is incorporated into the pericardial cavity

- Atrioventricular junction – future atrioventricular canal
- Conus cordis – out flow tracts of both ventricles
- Primitive ventricle – Left ventricle
- Bulbus Cordis – Right Ventricle

Summary

- We have discussed
  - Why do you need to learn development of heart
  - How the heart tube is formed
  - How the heart tube reaches its final position
  - How the cardiac loops are formed from the heart tube
- Read langmann’s embriology