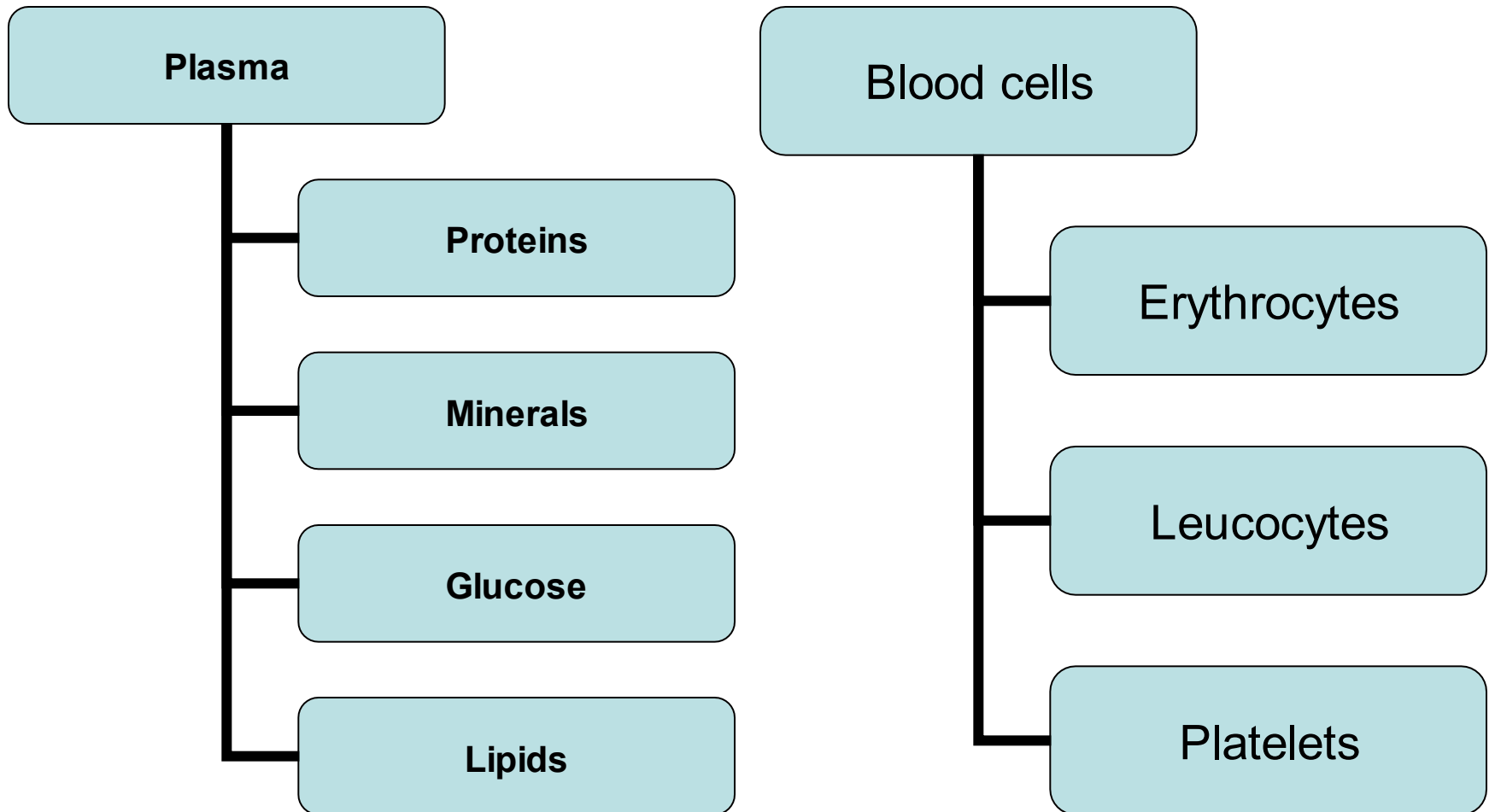


Body Fluids and Circulation

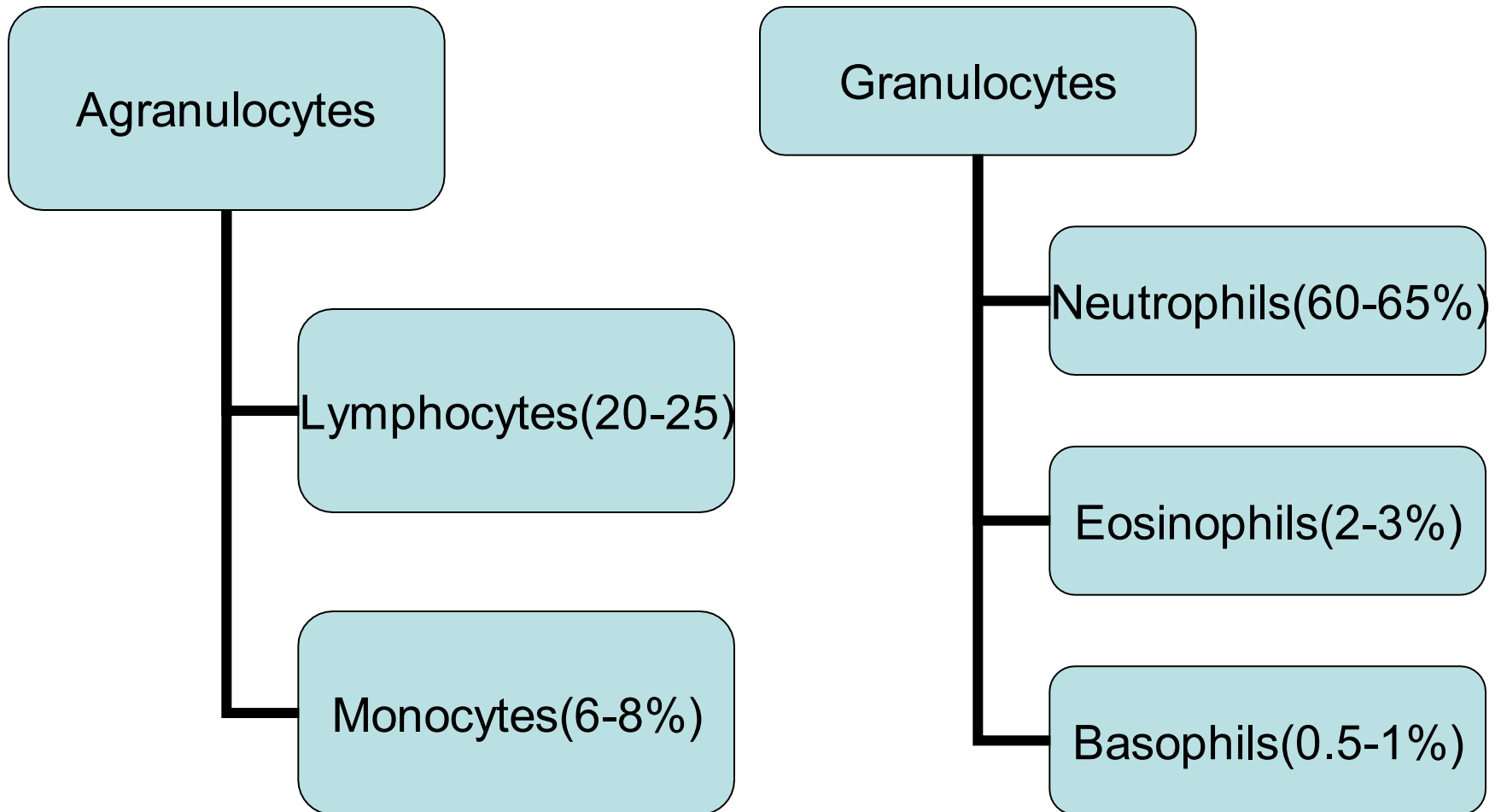
Body Fluids

- Blood
- Lymph

Blood



Leucocytes



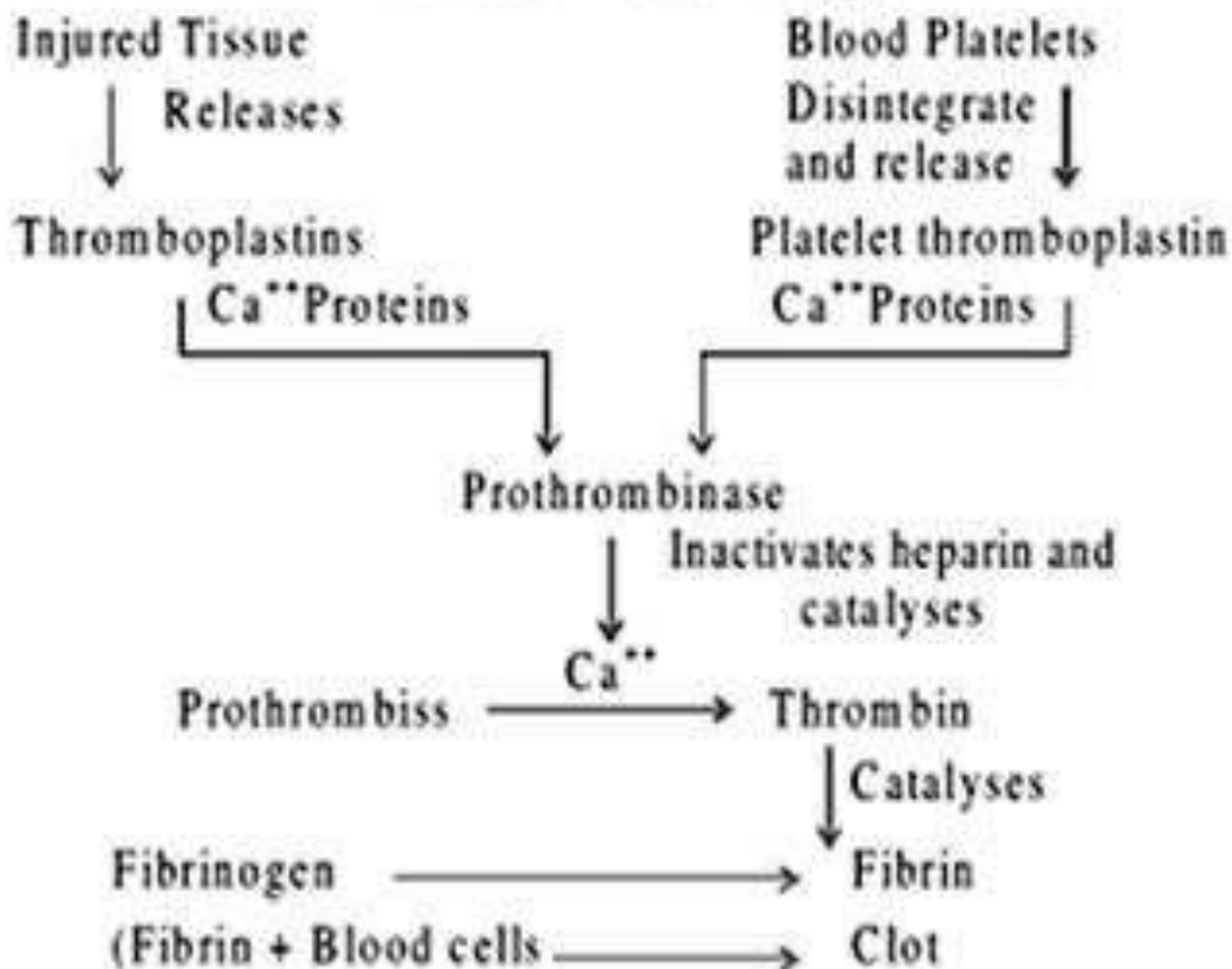
Blood Groups

Blood Group	Antigens	Antibodies	Donor's Group
A	A	anti-B	A,O
B	B	anti-A	B,O
AB	A,B	nil	A,B,AB,O
O	nil	anti-A,B	O

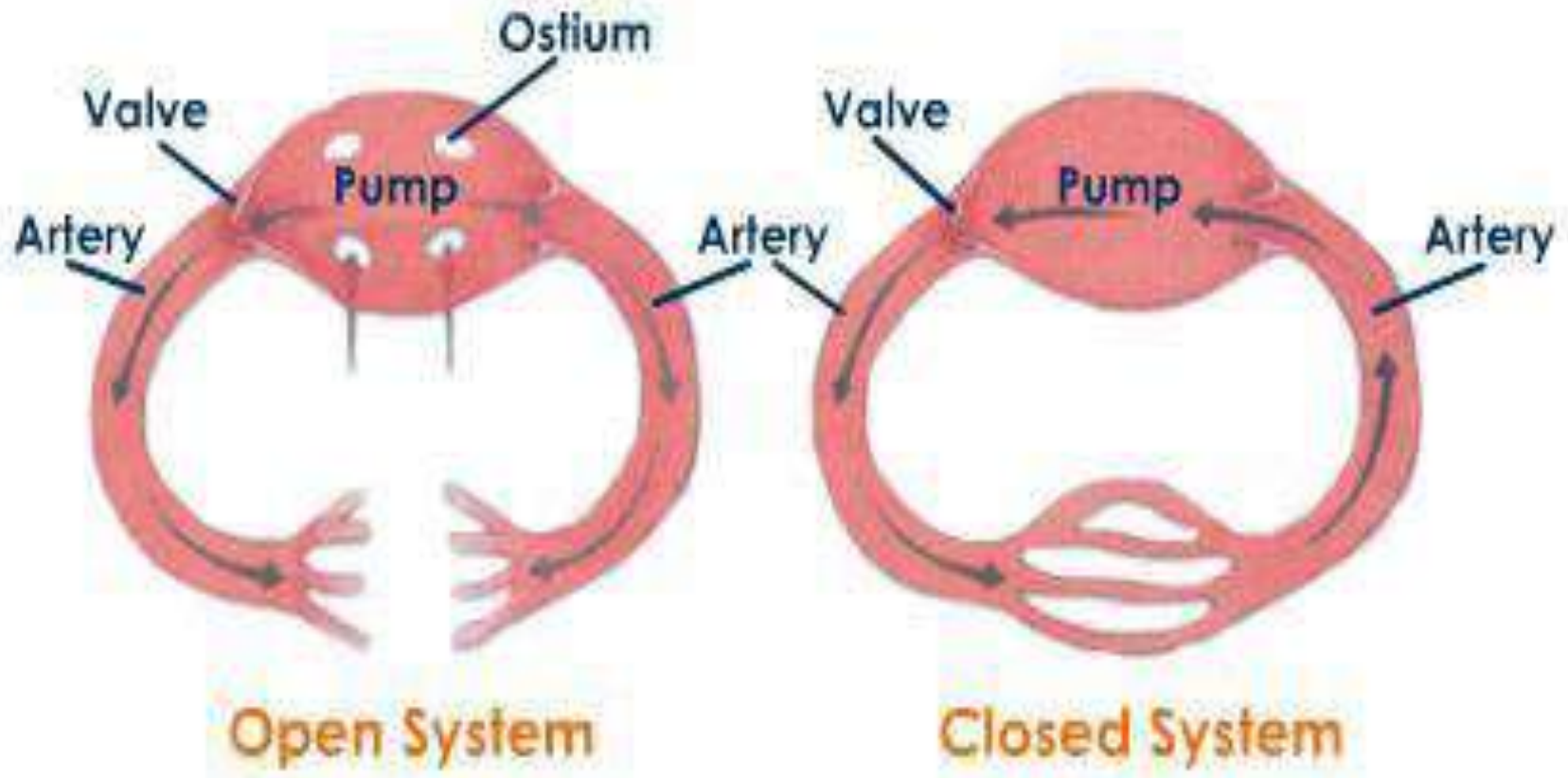
Erythroblastosis foetalis

Rh incompatibility between the Rh-ve blood of a pregnant mother with Rh+ve blood of the foetus

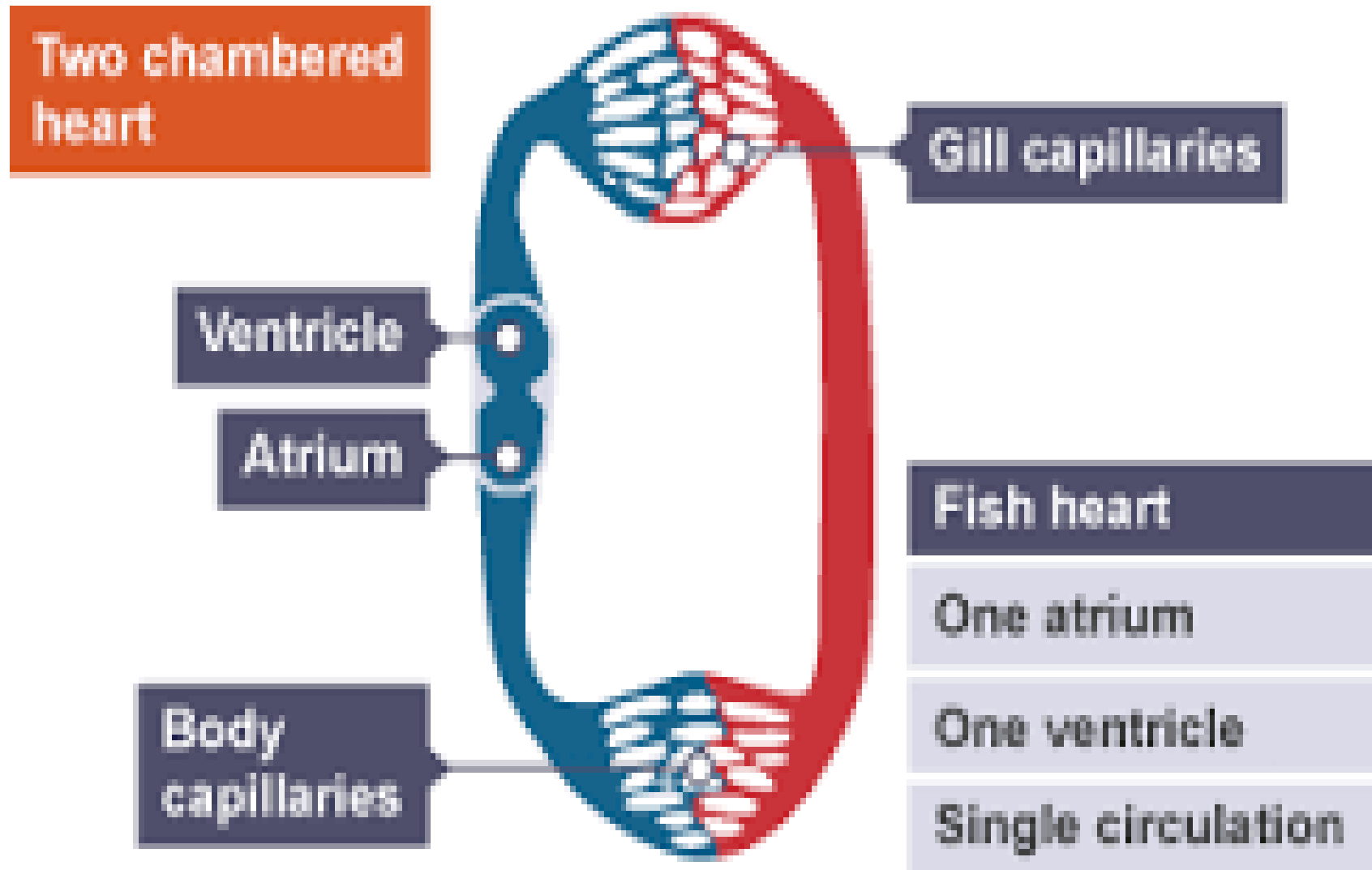
Blood Clotting



Open and closed circulatory system

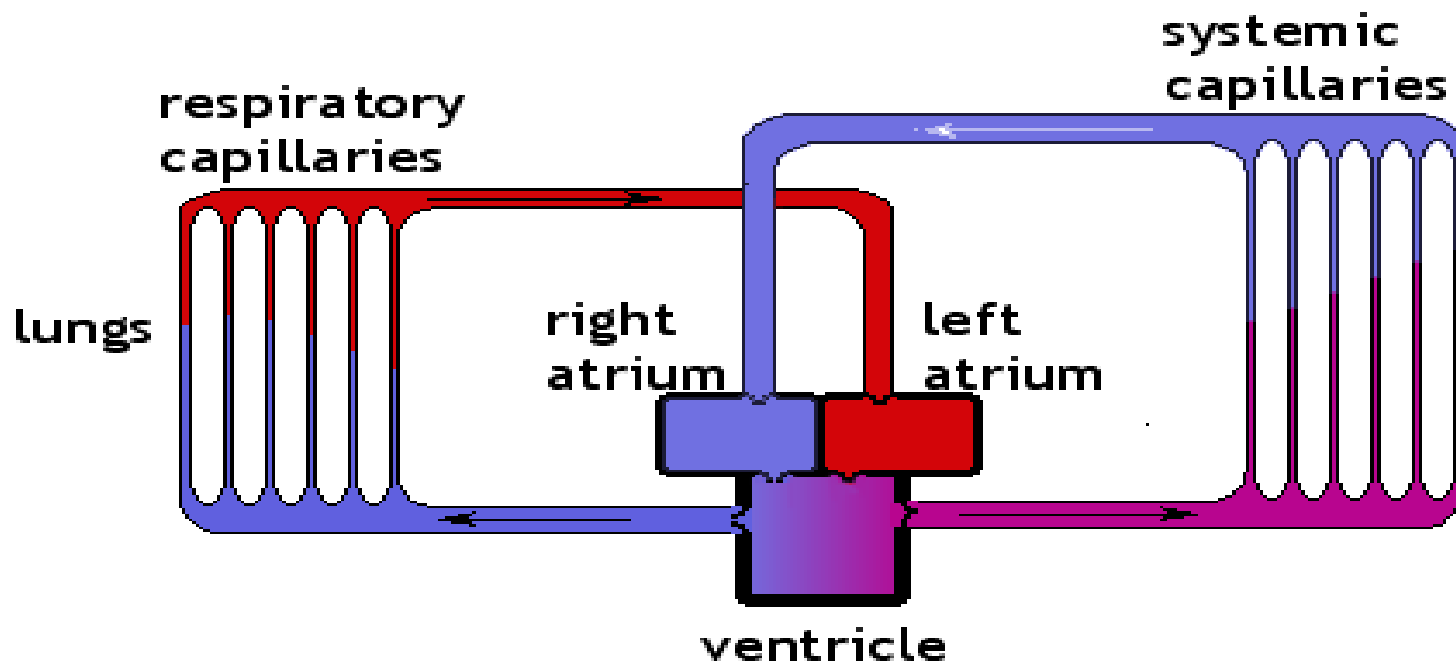


Circulation in fish



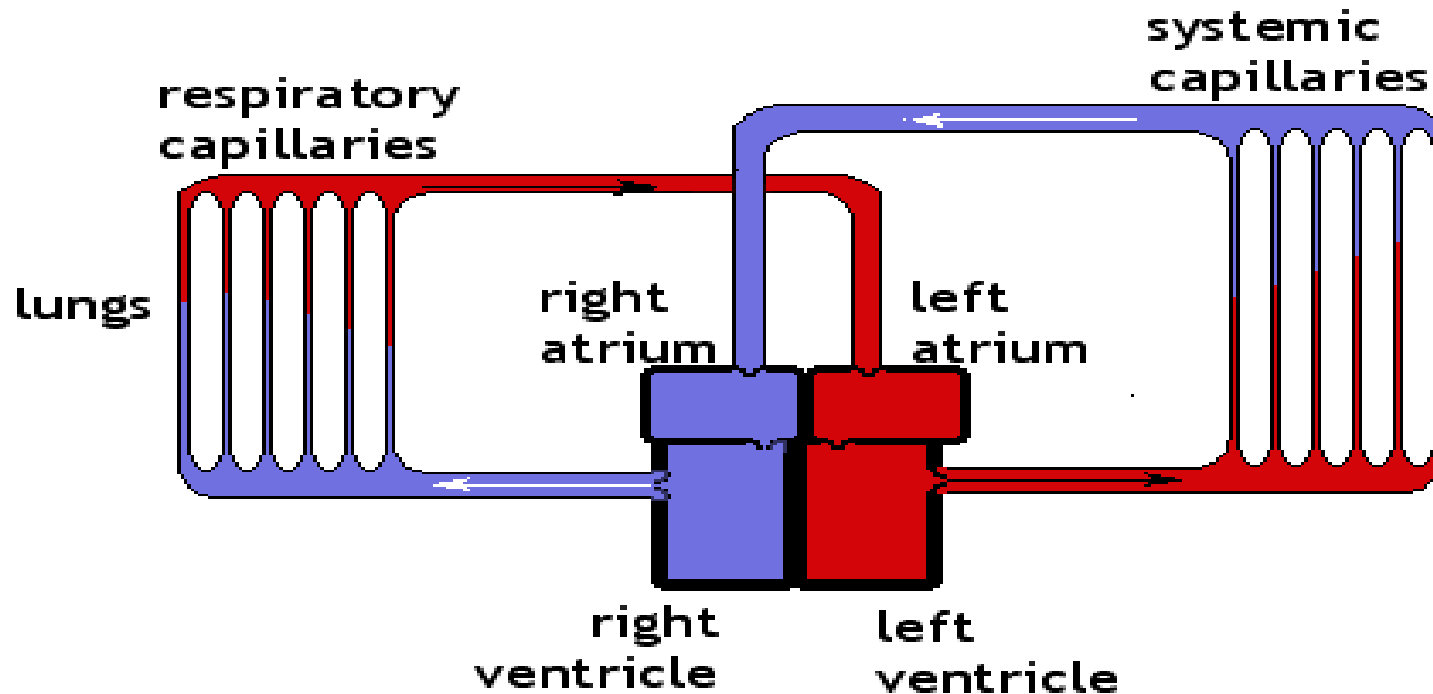
Amphibian/primitive reptile:

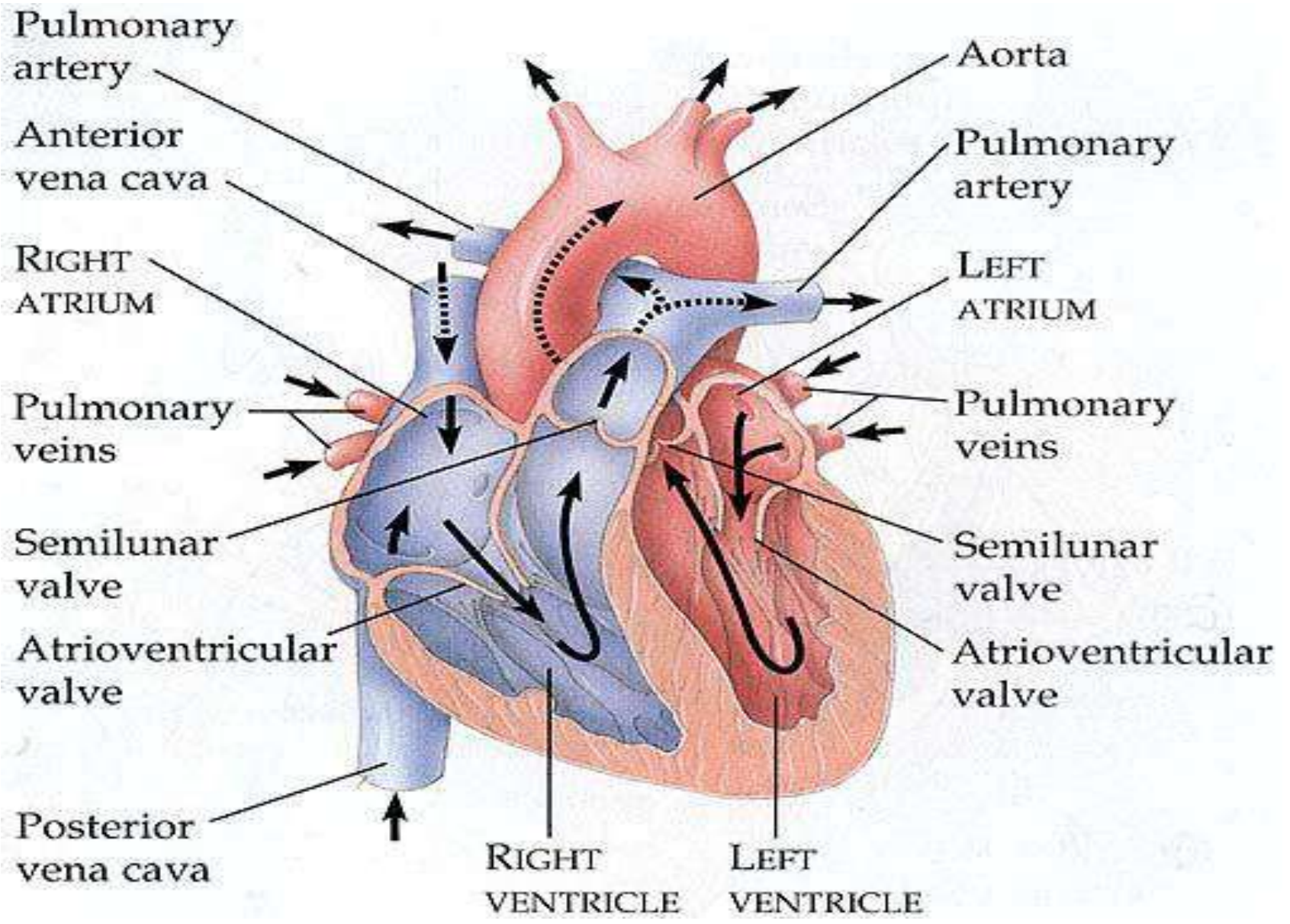
*Three chambers, incomplete separation of ventricle,
double-circuit pump with separate pulmonary and systemic trunks*

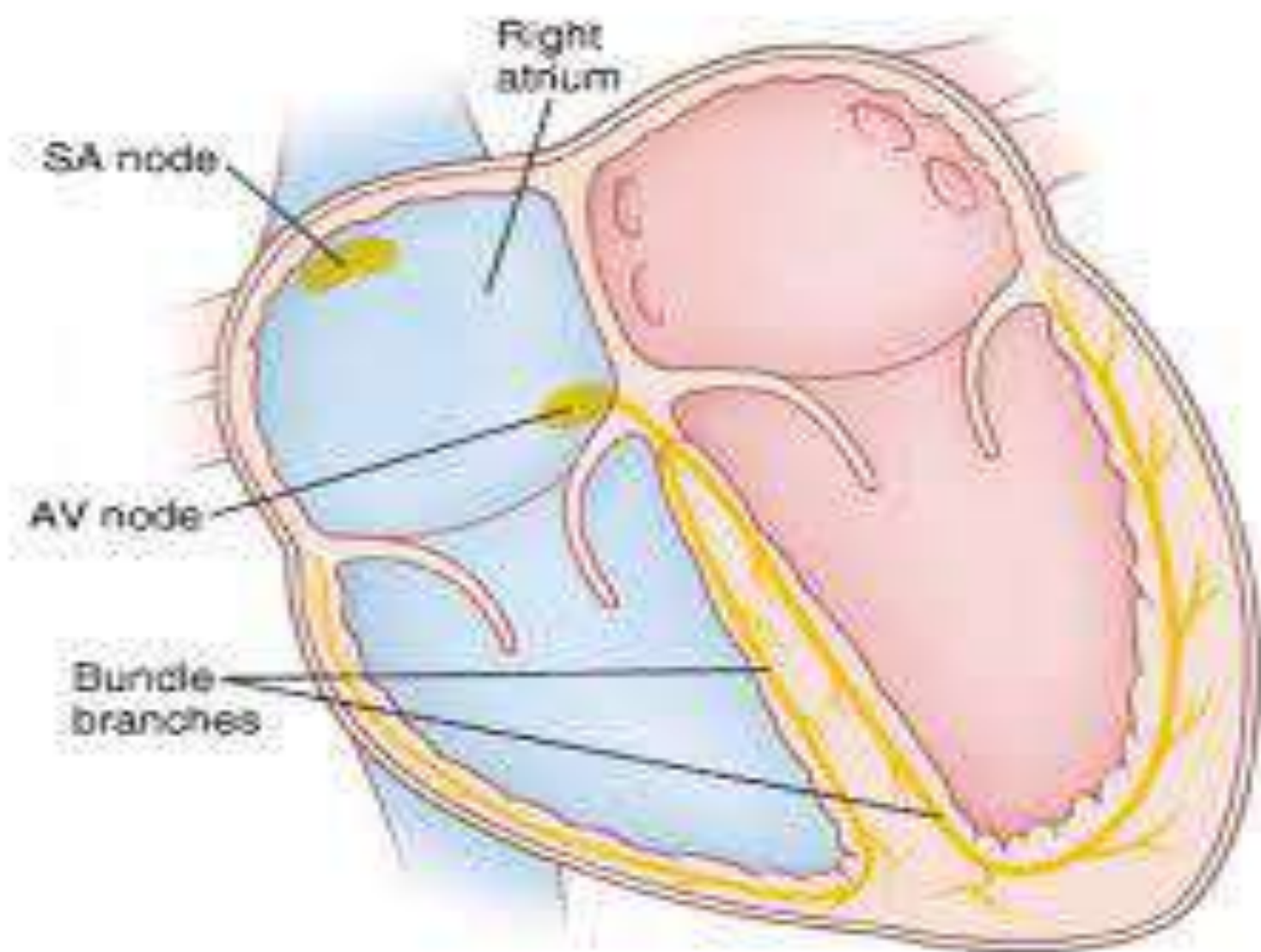


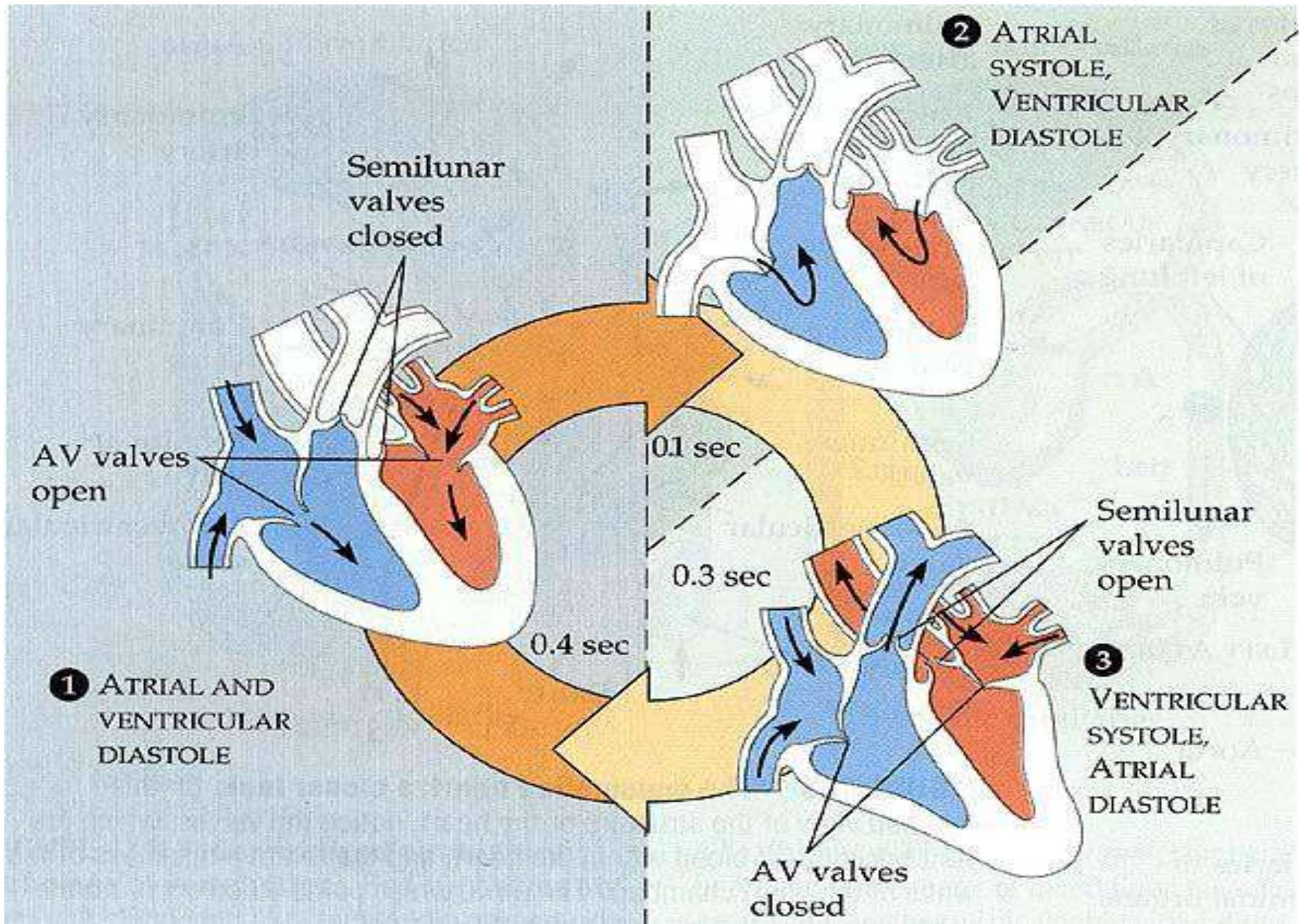
Mammal/bird/crocodilian:

Four chambers, complete separation of ventricle, double-circuit pump with separate pulmonary and systemic trunks

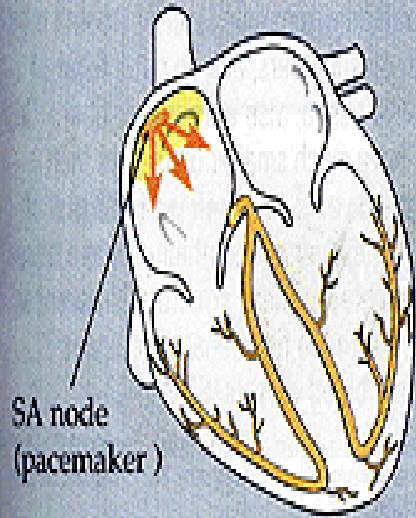




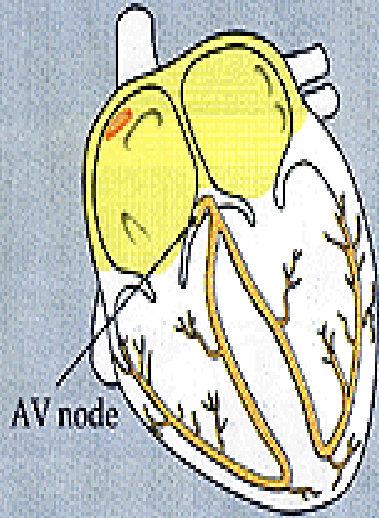




1 Pacemaker generates wave of signals to contract



2 Signals delayed at AV node



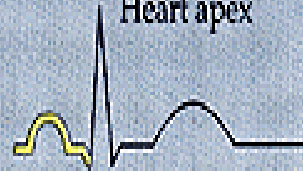
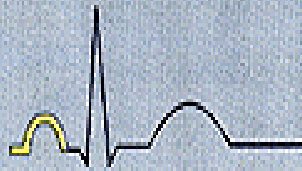
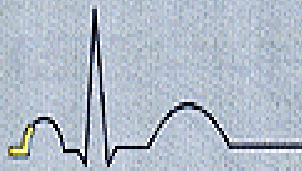
3 Signals pass to heart apex



4 Signals spread throughout ventricles



ECG



Output of cardiac cycle

Duration of cardiac cycle = 0.8 seconds

Stroke volume i.e. blood pumped by each ventricle during a cardiac cycle = 70 mL.

Cardiac output = stroke volume × no. of
beats per minute

Cardiac output averages 5000 mL in a
healthy individual .

Regulation of Cardiac Activity

- Autoregulation , hence the heart is called myogenic .
- Hormonal regulation
- Medulla Oblangata moderates the cardiac function through autonomic nervous system(ANS).

(a) sympathetic nerves of ANS increase rate of heart beat .

(b) parasympathetic nerves of ANS decrease rate of heart beat .

Hypertensive heart diseases

- Arteriosclerosis: hardening of arteries due to thickening of fibrous tissue and calcification and the consequent loss of elasticity
- Atheroma / atherosclerosis: narrowing of arteries due to deposition of fats
- Hypertension: due to nervous tension and emotional stress

Coronary Artery Disease

- Angina Pectoris: due to arteriosclerosis of the coronary arteries
- Heart attack: due to formation of clot in a narrowed coronary artery.

Heart failure

- This is due to damage to the valves. The blood is forced back into the auricles when the ventricles contract.