

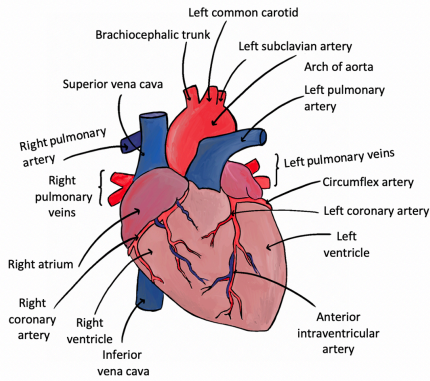
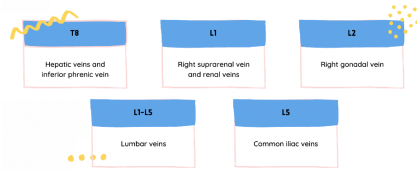
THE HEART

The Great vessels of the Heart

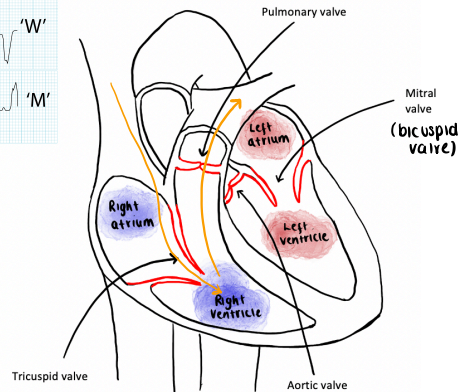
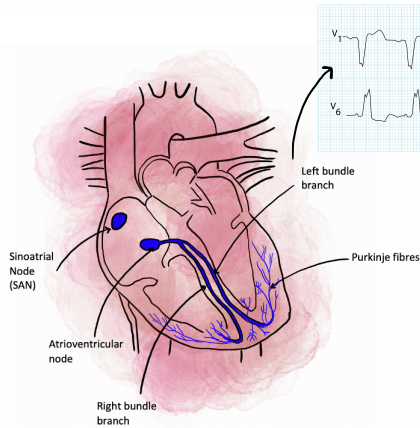
The heart is the major organ responsible for maintenance of the **Circulatory system**. It is supplied by 5 main vessels:

- Superior vena cava
- Inferior vena cava
- Pulmonary arteries
- Pulmonary veins
- Aorta

VERTEBRAL LEVELS

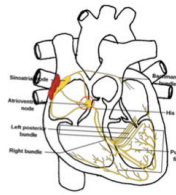
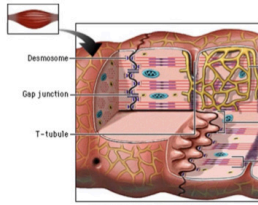


VALVES OF THE HEART



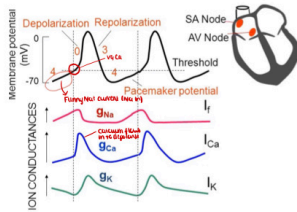
PHYSIOLOGY OF AN ECG

When a depolarising electrical wave front flows towards the + electrode it is **positive**.
 The voltage recorded along a particular lead at a time is reflective of the **vector** projected onto that axis **in both size & direction** of the depolarisation at that time. (**DIPOLE**)

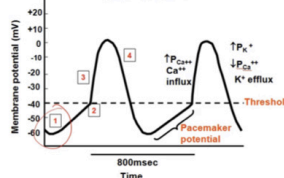


- Contractile is **myogenic** - originates in the **SA node, AV node + Purkinje fibres**
 - **Conduction spreads via:**
 - atrial muscle cell → muscle cell via **intercalated discs + gap junctions**
 - specialised muscle cells forming **conduction fibres** (bundle of His + Purkinje)
- Bundles enable **synchronicity** - efficient pumping.

The Pacemaker Action Potential



1. 'Funny' sodium channels (I_f channels) are open (↑P_{Na}⁺) and closing K⁺ channels.
2. Transient Ca²⁺ (T-type) channels open, pushing the membrane potential to threshold.
3. Long-lasting Ca²⁺ (L-type) channels open, giving rise to the action potential.
4. Opening of K⁺ channels (P_K⁺) and closing of Ca²⁺ (L-type) channels, hyperpolarising the cell!



ECG Reminder!

