

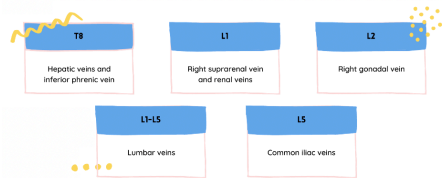
THE HEART

The Great Vessels of the Heart

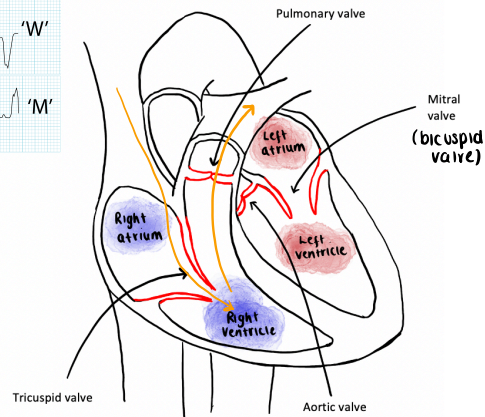
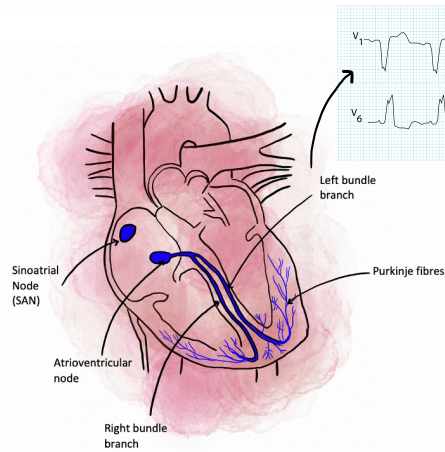
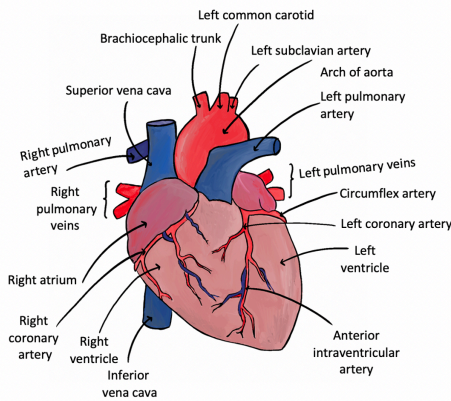
The heart is the major organ responsible for maintenance of the **Circulatory system**. It is supplied by 5 main vessels:

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

VERTEBRAL LEVELS

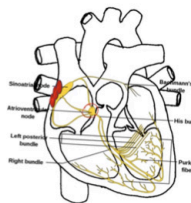
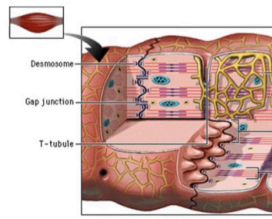


VALVES OF THE HEART



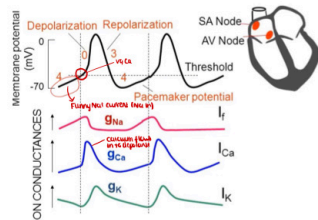
PHYSIOLOGY OF AN ECG

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 i.e. both **size** + **direction** of the depolarisation at that time. (**DIPLOE**)

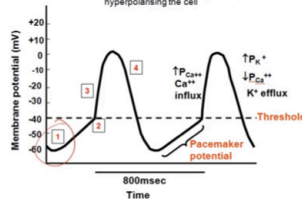


- ° Contraction is **myogenic** + originates in the SAN, AV node + Purkinje fibres
- ° Conduction spreads via:
 - atrial muscle cell → muscle cell via intercalated discs + gap junctions
 - specialised muscle cells forming conduction fibres (bundle of His + Purkinje)
- Bundles enable synchronicity + efficient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

The Pacemaker Action Potential



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



ECG Reminder!

