- **Physiology of the heart**
  - *Conduction in the heart*
    - SAN produce electrical impulses
    - Rapidly spread throughout atrial muscle
    - Slight delay as impulse passes through AVN
    - Impulses pass rapidly down bundle branches and upwards through purkinje fibres
    - Followed by ventricular contraction
    - Cell continues to depolarise gradually (pacemaker potential)
      - Threshold reached
      - Another type of V-G channels open; influx of Ca2+
        - Results in rapid depolarisation - cardic action potential
      - V-G Ca2+ channels open
        - Inside less negative
  - *Cardiac pacemakers*
    - AVN does the same but slower
      - Would only contract ventricles
    - SAN can be influenced by para and sympathetic nerves
    - SAN cells depolarises overtime, causing rmp to gradually decrease
      - Pacemaker potential
  - *Pacemaker potentials*
    - Mp of -60mV, funny channels open in SAN cell membrane
      - Na+ enters funny channels
        - Inside less negative
  - *ECG*
    - T wave = ventricular repolarisation
    - P wave = atrial depolarisation
    - QPS complex = ventricular depolarisation
  - *Cardiac cycle*
    - Ventricular ejection
    - Isovolumetric relaxation
    - Ventricular filling
    - Isovolumetric contraction
    - Atrial contraction
  - Cardiac output = stroke vol. x heart rate
  - *Heart sounds*
    - Semilunar valves closing
      - Ventricles relax
    - Second sound (DUPP)
    - First sound (LUBB)
      - Ventricles contract
      - Closure of AV valves
  - *Construction in the heart - cardiac muscle*
    - Allows cardiac muscle to function as a syncytium
      - Gap junctions allow passage of aps from 1 cell to another
    - Desmosomes hold muscle cells tightly
    - Contains desmosomes and gap junctions
      - Intercalated discs link muscle cells together
  - Stroke volume = end diastolic vol. - end systolic vol.
    - Regulation of stoke vol.
      - Afterload
        - Pressure against which heart needs to pump to expel blood
      - Preload
        - Extent of strech of heart muscle
      - Contractiity
        - Ability of muscle to produce a force
  - *Right and left atroventricular valves*
    - Prevent backflow from ventricles into atria
    - Tricuspid
    - Bicuspid
  - *Right and left semilunar valves*
    - Aortic valves
    - Pulmonary
  - Backflow from arteries into ventricles