Resting potential (Rest Pot) created by uneven distribution of Sodium and Potassium ions

Two features of the cell membrane bring about the uneven distribution of Na and K ions:

- Sodium-Potassium Pumps
- Diffusion of Na and K ions across the membrane

Sodium Potassium Pumps: active transport systems that continuously pump sodium out and potassium in across the membrane

NA and K can't diffuse through the phospholipids of the CSM but they can diffuse through the ion channels in special channel proteins in the membrane

There are special channel proteins for each SPECIFIC ION and they can be opened or closed

Potassium ions open, sodium closed

Action Potentials:

When an AXON is stimulated RESTING POTENTIAL is REVERSED!!!!!

Resting pot= round -70 mV

The stimulation of the axon means inside of membrane is more positive than outside (round +30 or40mV or so)

The membrane is DEPOLARISED

RESTING= POLARISED AXON STIMULATION= DEPOLARISED

This happens because, as the impulse passes, the membrane suddenly becomes more permeable to SODIUM IONS than to POTASSIUM IONS

The SODIUM channels open and the POTASSIUM channels close

SODIUM diffuses in quicker than the potassium diffuse out

Makes the inside of the membrane more positive than the outside

For every ATP hydrolysed, 3 sodium diffuse in, 2 potassium diffuse out (reverse true if at resting)