

## Resting potential (polarization)

- A 'resting' neuron is not conducting nerve impulses at that moment but keeps the neuron ready to transmit an impulse.
- A 'resting' neuron has a **resting potential** of  $-70\text{ mV}$  – this is the **potential difference** across the plasma membrane because the inside of a neuron is **negatively charged** relative to the outside due to:
  - the **sodium-potassium pump**, which uses the energy from the breakdown of ATP to pump  $3\text{ Na}^+$  out of the axon and  $2\text{ K}^+$  in, causing concentration gradients of  $\text{Na}^+$  and  $\text{K}^+$ .
  - the neuron membrane being more permeable to the **facilitated diffusion** of  $\text{K}^+$  flowing out than  $\text{Na}^+$  flowing back in so the tissue fluid outside the neuron contains more positively charged ions in comparison to inside.
  - negatively charged organic ions, e.g. large proteins, in the axon cytoplasm.

