diffusion
selective permeability
ELECTROSTATIC PRESSURE
Na-K Pump Animation

http://highered.mcgraw-hill.com/olc(dl)/120068/bio03.swf
$\text{K}^+$ opens at $\overline{mV} < -60\text{mV}$

$\overline{v_{\text{Na}}}$

$-60\text{mV}$

Closed

Open

Inactive

Threshold marker

Time

Negative $mV$
Na⁺ Opens

Na⁺ becomes Refractory

K⁺ continues to leave cell. Causing the membrane potential to return to the resting potential.

K⁺ channels close.

Na⁺ channels reset, ready for action again!

Extra K⁺ outside diffuses away.
Depolarizing stimulus

Oscilloscope shows action potentials

Giant squid axon

Direction of travel of action potential
Depolarizing stimulus

Myelin sheath

Decremental conduction under myelin sheath

Action potential is regenerated at nodes of Ranvier
“This phone has a special filter that makes calls from your mother 20% less stressful.”
Synaptic Transmission

- Presynaptic Membrane
- Synaptic Vesicle
- Synaptic Cleft
- Neurotransmitter
- Postsynaptic Membrane