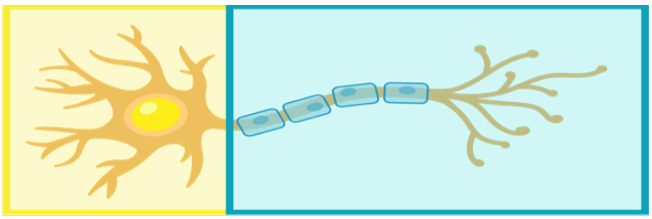
TOPIC: PROPERTIES OF GRADED AND ACTION POTENTIALS

- **Graded Potentials:** Variable-strength signals that occur when ion channels open/close in response to stimulus.
- **Action Potentials:** Brief depolarization event propagated along the _____ of a neuron.
- Transition from graded to action potential happens at _____ segment of axon.

	Graded Potential	Action Potential
Type of Signal	Input signal	Output signal
Location on Cell	Dendrites and _____ body	Axon
Travel	_____ distances	Long distances
Type of Signal	Depolarizing or hyperpolarizing	Depolarizing
Signal Strength	Depends on magnitude of stimulus	All _____
Threshold	No minimum level required to initiate	Initiate at threshold of approx _____ 'All-or-none' phenomenon



EXAMPLE: Action potentials are an all-or-none phenomenon, meaning that once the membrane potential reaches approximately _____, they will always happen.

a) -70 mV.
b) -55 mV.
c) 0 mV.
d) +30 mV.

PRACTICE: _____ are all identical, whereas _____ can be larger or smaller depending on the level of stimulation.

a) Action potentials; graded potentials.
b) Graded potentials; action potentials.
c) Depolarizations; hyperpolarizations.
d) Repolarizations; depolarizations.

PRACTICE: Which of the following statements about graded potentials is FALSE?

a) Graded potentials act as short distance signals.
b) The magnitude of a graded potential is proportional to the magnitude of the stimulus.
c) Graded potentials occur mainly in axons.
d) Graded potentials can be depolarizing or hyperpolarizing.