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Conceptual Biology

Chapter 12: The Nervous System

Parts of the Brain

Match parts of the brain responsible for their body functions.
Note that some parts have more than one function.

Brainstem _____

Cerebellum _____

Cerebrum _____

Thalamus _____

Hypothalamus _____

a. Deals with visual information (what we see)

b. Controls balance, posture, and coordination

c. Deals with sensory information about temperature, touch, and pain

d. Controls basic involuntary activities such as heartbeat, respiration, and digestion

e. Allows us to understand spoken language

f. Controls our voluntary movements

g. Sorts and filters information and then passes it to the cerebrum

h. Responsible for emotions such as pleasure and rage

i. Controls our speech

j. Controls hunger, thirst, and sex drive

k. Controls the fine movements we use in activities that we perform "without thinking"

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The Nervous System

1. The two main parts of the nervous system are the _____

and _____.

The central nervous system consists of the _____ and

_____.

2. The three types of neurons are _____,

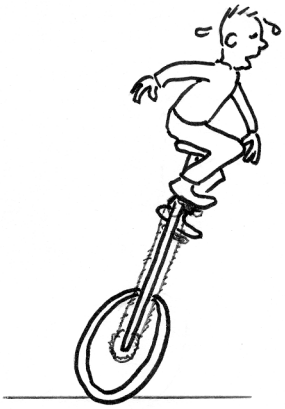
_____, and _____.

Messages from the senses to the central nervous are carried by

_____. Neurons that connect one neuron to another neuron are

_____. Messages are carried from the central nervous system

to muscle cells or to other responsive organs by _____.



3. Motor neurons are further divided into two groups,

the _____,

which controls voluntary actions and stimulates our voluntary muscles,

and the _____

which controls involuntary actions and stimulates involuntary muscles

and other internal organs.

The autonomic nervous system, includes a _____

that promotes a "fight or flight" response and a _____

that operates in times of relaxation.

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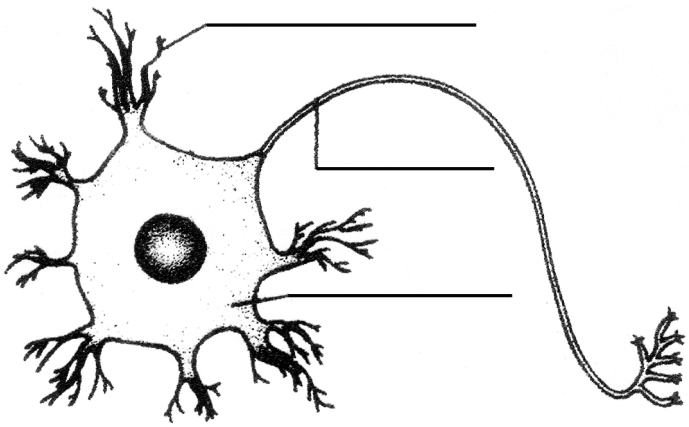
Parts of a Neuron

1. a. Label the parts of the neuron in the diagram.

Dendrites

Cell body

Axon



b. Explain the function of each part of a neuron.

Part of a neuron	Function
Dendrites	_____
Cell body	_____
Axon	_____

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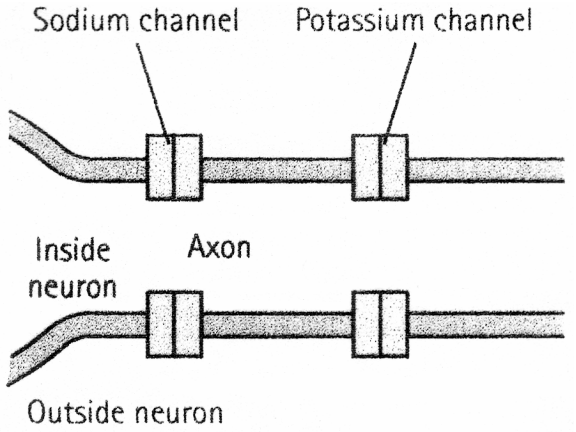
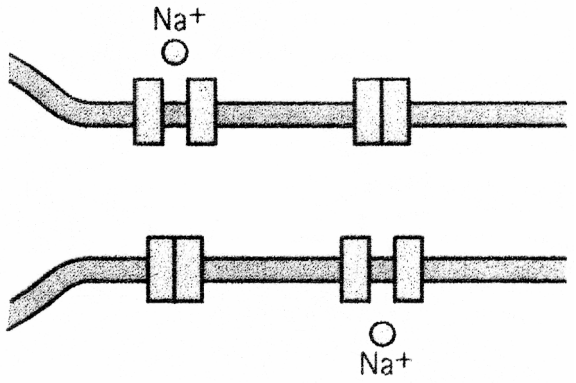
Action Potentials

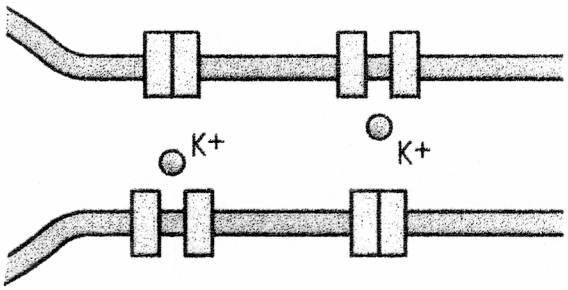
1. This is a neuron at rest. The neuron is at its resting potential. Draw a + sign on the side of the membrane that is positively charged. Draw a – sign on the side of the membrane that is negatively charged.



2. Now the neuron fires! There is an action potential. The sodium channels open. Use arrows to show how the sodium ions move. Draw a + sign on the side of the membrane that is positively charged. Draw a – sign on the side of the membrane that is negatively charged.



3. Now the sodium channels close, and the potassium channels open. Use arrows to show how the potassium ions move. Draw a + sign on the side of the membrane that is positively charged. Draw a – sign on the side of the membrane that vis negatively charged. The action potential is over.



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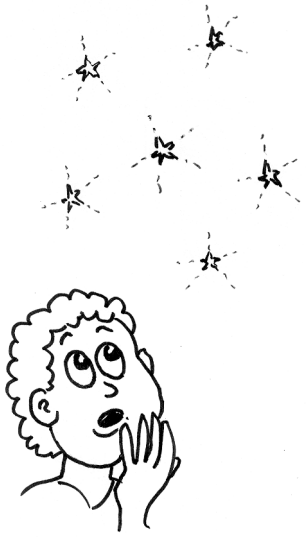
Chapter 12: The Nervous System

Senses



1. The light-sensitive cells are found in the part of the eye

   called the _____.

   The two types of light-sensitive cells are _____

   and _____.

2. State whether the following describes rods or cones.

   a. Vision at night or in dim light _____

   b. Let us see color _____

   c. Detect only black, white, and shades of gray _____

   d. Not very good at making out fine details _____

   e. Nonfunctioning version of these causes colorblindness _____

Number from 1 to 4:

3. The ear consists of 3 parts: the outer, middle, and inner ear. Sound moves through the air in the following order:

   _____ middle ear bones

   _____ pinna

   _____ cochlea

   _____ eardrum

4. List the five basic tastes.

   _____ _____ _____

   _____ _____

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