

What is the Nervous System?

Worksheet

The nervous system is the organ system that senses stimuli, processes information, and controls the body's responses, using the brain and spinal cord (CNS) together with nerves throughout the body (PNS) to transmit electrical and chemical signals.

Questions

1. Which structures make up the CNS?

- A) Nerves and ganglia
- B) Brain and spinal cord
- C) Sensory receptors only
- D) Muscles and glands

2. What carries a signal from a receptor to the CNS?

- A) Motor neuron
- B) Sensory neuron
- C) Interneuron only
- D) Effector

3. What happens at a synapse?

- A) Bone growth
- B) Neurotransmitter release between neurons
- C) Blood filtration
- D) Muscle contraction directly

4. Which best describes a reflex arc?

- A) A slow, conscious decision
- B) A fast, largely spinal-cord-processed response
- C) A digestive process
- D) A hormone release from glands

5. Explain the nervous system pathway when you touch a hot stove and pull your hand back.

6. Describe how the nervous system lets you read this sentence.

7. How does the nervous system control heart rate during exercise, without conscious thought?

8. Define: What are the two main divisions of the nervous system?

9. Define: What is a neuron?

10. Define: What is a synapse?

Answer Key

1. B) Brain and spinal cord - The CNS consists of the brain and spinal cord.
2. B) Sensory neuron - Sensory (afferent) neurons carry signals toward the CNS.
3. B) Neurotransmitter release between neurons - Synapses use neurotransmitters to pass signals between neurons.
4. B) A fast, largely spinal-cord-processed response - Reflex arcs process rapidly, often at the spinal cord, without waiting for the brain.
5. Heat receptors in the skin detect the dangerous temperature (stimulus) Sensory neurons carry the signal to the spinal cord The spinal cord processes the signal as a reflex, without waiting for the brain Motor neurons signal the arm muscles to contract, pulling the hand away instantly
6. Light reflects off the text and stimulates receptors in the retina (PNS sensory input) The optic nerve carries visual signals to the brain (CNS) The visual cortex interprets shapes as letters and words Language areas of the brain assign meaning, and you consciously understand the sentence
7. Exercise increases the body's oxygen demand, detected by internal receptors The autonomic nervous system (part of the PNS) relays this to the brainstem The sympathetic division sends signals to speed up the heart Heart rate increases automatically, without any conscious decision
8. The central nervous system (CNS) and the peripheral nervous system (PNS).
9. A specialized cell that transmits electrical and chemical signals throughout the body.
10. The junction where a neuron passes a signal to another cell using neurotransmitters.

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