

What is the Nervous System?

Worksheet

The nervous system is an organ system of neurons and support cells that receives sensory input, processes information and sends motor output, divided into the central nervous system (CNS) and peripheral nervous system (PNS).

Questions

1. Which structures make up the CNS?

- A) Brain and spinal cord
- B) Nerves and ganglia
- C) Brain and nerves
- D) Spinal cord and muscles

2. The sympathetic nervous system triggers which response?

- A) Rest and digest
- B) Fight or flight
- C) Sleep
- D) Digestion only

3. A reflex arc primarily involves which structure?

- A) Cerebral cortex
- B) Spinal cord
- C) Cerebellum only
- D) Hypothalamus

4. Which division controls voluntary muscle movement?

- A) Autonomic
- B) Sympathetic
- C) Somatic
- D) Parasympathetic

5. A person touches a hot stove and pulls their hand back instantly. Which parts of the nervous system are involved?

6. Explain how the autonomic nervous system controls heart rate during a fright.

7. Trace a voluntary movement: deciding to wave your hand.

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

9. Define: What is the somatic nervous system?

10. Define: What is the autonomic nervous system?

Answer Key

1. A) Brain and spinal cord - The CNS consists of the brain and spinal cord.
2. B) Fight or flight - Sympathetic activation prepares the body for fight-or-flight.
3. B) Spinal cord - Reflex arcs are processed at the spinal cord for speed.
4. C) Somatic - The somatic nervous system controls voluntary skeletal muscle.
5. Sensory neurons in the skin detect heat The signal travels via peripheral nerves to the spinal cord The spinal cord triggers a reflex arc (motor neurons) before the brain even registers pain This is why the hand pulls back so fast - a spinal reflex, not a brain decision
6. The amygdala detects a threat The sympathetic division of the ANS activates Adrenaline signals are released, increasing heart rate and blood flow to muscles This is the 'fight or flight' response
7. The motor cortex in the brain (CNS) generates the command The signal travels down the spinal cord It exits via peripheral motor nerves (somatic PNS) It reaches hand muscles, causing contraction and the wave
8. The central nervous system (CNS: brain + spinal cord) and peripheral nervous system (PNS: all other nerves).
9. The part of the PNS that controls voluntary skeletal muscle movement.
10. The part of the PNS that controls involuntary functions like heart rate and digestion.

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