What are the Major Divisions of the Brain?

Worksheet

The brain's major divisions are the cerebrum, diencephalon (thalamus and hypothalamus), midbrain, pons, medulla oblongata and cerebellum - the last three brainstem structures link the forebrain to the spinal cord.

Questions

1. Which structure regulates body temperature, hunger and thirst?

A) Thalamus
B) Hypothalamus
C) Cerebellum
D) Pons

2. Which three structures make up the brainstem?

A) Cerebrum, cerebellum, thalamus
B) Midbrain, pons, medulla oblongata
C) Hypothalamus, pons, cerebrum
D) Cerebellum, medulla, thalamus

3. What is the cerebellum's main function?

A) Initiating voluntary movement
B) Coordinating movement and balance
C) Regulating hormones
D) Relaying sensory signals

4. What is the largest part of the human brain?

A) Cerebellum
B) Brainstem
C) Cerebrum
D) Diencephalon

5. Which brain division regulates heart rate and breathing, and where is it located?

6. A stroke damages a patient's cerebellum. What symptoms would you expect, and why not paralysis?

7. Trace the embryonic origin of the pons and cerebellum.

8. Define: What three structures make up the brainstem?

9. Define: What is the difference between the thalamus and hypothalamus?

10. Define: What is the largest division of the brain?

Answer Key

1. B) Hypothalamus - The hypothalamus is the brain's main homeostasis regulator.

2. B) Midbrain, pons, medulla oblongata - The brainstem consists of the midbrain, pons and medulla oblongata.

3. B) Coordinating movement and balance - The cerebellum fine-tunes and coordinates movement rather than initiating it.

4. C) Cerebrum - The cerebrum makes up roughly 85% of total brain mass.

5. The medulla oblongata contains the cardiac and respiratory centers It sits at the base of the brainstem It connects directly to the spinal cord, making it essential for basic survival

6. The cerebellum coordinates movement, balance and posture, but doesn't initiate voluntary movement itself Damage causes ataxia (uncoordinated movement), poor balance and tremor Paralysis doesn't occur because the motor commands still originate in the cerebrum's corticospinal tract

7. The neural tube's posterior region forms the hindbrain (rhombencephalon) The hindbrain splits into the metencephalon and myelencephalon The metencephalon develops into both the pons and the cerebellum

8. Midbrain, pons and medulla oblongata.

9. The thalamus relays sensory information to the cortex; the hypothalamus regulates homeostasis (temperature, hunger, hormones).

10. The cerebrum, split into two hemispheres and four lobes.