DISCOVER ANATOMY & PHYSIOLOGY

Lesson 12

Sample Quiz & Homework Questions

Sample Quiz: Lesson 12

Students answer quiz questions online, where they are automatically graded. The quizzes are designed to help the student test their own knowledge of the material. They should use the weekly comprehension quizzes as an opportunity to see where there are weaknesses in understanding so they can go back and study these areas.

There are four quarterly exams. These will be longer and more comprehensive tests, but the course contains study guides to help students study the important material. The exam grades are final —grades cannot be reset without the *parents' request*. As a parent, you can log in to your own account dashboard and click on "Student Management" to see the grades for each quiz.

1. What is the main purpose of the nervous system?
    a. To pump blood through the body
    b. To provide structure and support
    c. **To send and receive messages that coordinate body functions**
    d. To transport hormones to regulate long-term changes

2. Which two body systems work closely together to regulate the body?
    a. Nervous and muscular
    b. Nervous and skeletal
    c. Nervous and endocrine
    d. Nervous and digestive

3. Which of the following is part of the central nervous system (CNS)?
    a. **Brain and spinal cord**
    b. Nerves and ganglia
    c. Glial cells and endothelium
    d. Spinal nerves branching out into the arms and legs

4. Which part of the nervous system controls voluntary muscle movement?
    a. Autonomic nervous system
    b. Somatic nervous system
    c. Endocrine system
    d. Central nervous system

5. Which part of the nervous system is responsible for “fight or flight”?
    a. Parasympathetic division of the autonomic system
    b. Somatic nervous system
    c. Sympathetic division of the autonomic system
    d. Peripheral nervous system

6. Interneurons are found only in the brain and spinal cord.
    a. **True**
    b. False

7. What is the function of dendrites on a neuron?
    a. To carry signals away from the cell body
    b. To release neurotransmitters to the next cell
    c. To receive incoming signals
    d. To provide insulation for faster signaling

8. What is the main role of the axon terminals?
    a. To keep the cell alive and functioning
    b. To carry the electrical signal down the neuron
    c. To release neurotransmitters to the next cell
    d. To wrap the axon in myelin

9. The soma of the neuron contains the nucleus and makes the decision about whether to send a signal.
    a. **True**
    b. False

10. Which type of neuron carries information from the body to the CNS?
    a. Motor neurons
    b. Interneurons
    c. Sensory neurons
    d. Neuroglia

11. Which neuroglial cells wrap axons with myelin in the peripheral nervous system?
    a. Astrocytes
    b. Schwann cells
    c. Microglia
    d. Oligodendrocytes

12. What is an action potential?
    a. A hormone released by glands
    b. A glial cell that feeds neurons
    c. A chemical signal crossing the synapse
    d. An electrical signal racing down the axon

13. Which neurotransmitter is responsible for telling muscles to contract?
    a. Dopamine
    b. **Acetylcholine**
    c. Serotonin
    d. Norepinephrine

14. What role do neurotransmitters play in communication between neurons?
    a. They generate electricity inside the axon
    b. They insulate the neuron
    c. They store oxygen and nutrients for the neuron
    d. They carry the signal across the synapse to the next cell

Sample Homework: Lesson 12

Students will be assigned homework questions to answer most weeks. These questions are designed to help them apply the lecture material and reinforce difficult lecture topics and help with memorization of important structures. Your students can use their notes, textbook, other books, or other resources available to them to answer these questions.

The parent is responsible for grading these assignments. You can download an answer key in your parent dashboard that will help you with grading. For each question, we recommend assigning a grade between 0-3. Give your student 3 points if the answer looks accurate, 2 points if the work lacks important details, 1 point if it looks largely inaccurate, and 0 points if the work was incomplete or was hastily completed.

Below is an example of what homework questions for lesson 13 look like, along with the parent answers included in red.

1. Imagine you step on a LEGO barefoot and yelp while hopping on one foot. In 1-2 paragraphs, trace what happened through the nervous system using these exact labels at least once each:
    - receptor
    - afferent
    - CNS (brain or spinal cord)
    - integration
    - efferent
    - effector

    When I stepped on the LEGO, pain receptors in my foot detected the stimulus. The sensory signal traveled along an afferent pathway to the spinal cord and brain, which are part of the CNS. During integration, the nervous system processed the pain and decided that I needed to move my foot away. An efferent signal was then sent from the CNS to the muscles in my leg. Those muscles acted as the effectors and contracted, causing me to hop and pull my foot back.

2. A patient can feel pain in their hand but cannot voluntarily move their fingers. Using terms you learned in the lesson, explain in a paragraph whether the problem is most likely in the afferent pathway, efferent pathway, or integration, and provide your reasoning.

Because the patient can feel pain, the receptors and afferent (sensory) neurons from the hand to the CNS must still be working. The nervous system is receiving the sensory input, so the sensory pathway is intact. The problem is voluntary movement, which is controlled by the somatic nervous system using efferent (motor) neurons that send commands from the CNS out to skeletal muscles. Since the muscles are assumed healthy, the most likely impairment is in the motor pathway—either the motor neurons themselves or the nerve pathway carrying efferent signals to the finger muscles. Therefore, the impaired part is the efferent (motor) pathway / motor neurons, not the afferent pathway.