

Investigation 11.C: Examining Neural Tissue Answer Key

Answers to Analysis Questions

1. Your drawing will likely show a difference in colour (grey vs. white). Grey matter is a category of nervous tissue characterized by many nerve cell bodies and very few myelinated axons. Grey matter looks reddish grey on a freshly removed brain. White matter is composed of axon nerve fibres that are covered by a myelin sheath.
2. Your drawing should show numerous neurons enclosed in a sheath. The neurons are the functional units of the nervous system. These cells transmit regulatory information in the form of electrochemical impulses.
3. Your drawing should be similar to Figure 11.6 on page 369 of the student textbook (shown below). A stimulus causes sensory receptors to generate a nervous impulse that travels along sensory axons to the spinal cord. Interneurons integrate data from sensory neurons and then relay signals to motor neurons. Motor axons convey nerve impulses from the spinal cord to an effector such as a skeletal muscle.

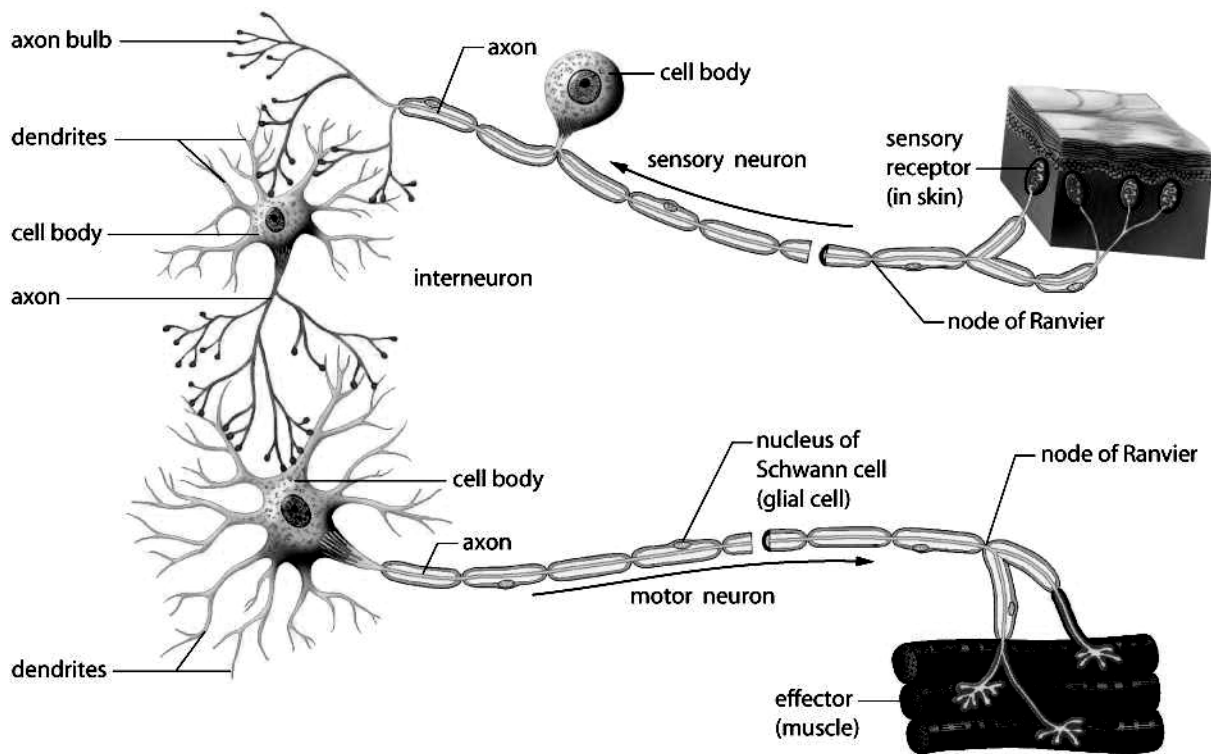


Figure 11.6 This diagram shows how a sensory neuron, an interneuron, and a motor neuron are arranged in the nervous system. (The breaks indicate that the axons are longer than shown.)

4. Your drawing should include the dendrites, cell body, and axon. The impulse should indicate that dendrites transmit the nervous impulse to the cell body while the axon transmits the nerve impulse away from the cell body.

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5. Your drawing should include the axon, the myelin sheath, a Schwann cell (including the nucleus), and a node of Ranvier. The myelin sheath protects the myelinated neuron and speeds the rate of nerve impulse transmission.
6. Your drawing should include the end plates of a motor neuron, the synapse, and the muscle fibre. Students will be learning that special chemical messengers (neurotransmitters) carry the neural signal from the neuron to the muscle fibre.
7. Your answer will depend on the slide or slides that your teacher has provided.