Name: _____ Group: _____ Date: _____

THE NERVOUS AND MUSCULOSKELETAL SYSTEMS

STUDENT BOOK | Ch. 7, pp. 202–206

Nervous system, neuron, nerve impulse, peripheral nervous system, nerves

1. Use the following words to complete the text below. Terms may be used more than once.

sensory	central	nerves	stimuli
brain	peripheral	nervous	

The _____ system is composed of the _____ nervous system and the _____ nervous system. It coordinates all activities that help the organism to function. The nervous system receives _____ from _____ receptors, then transmits the information to the brain. In turn, the _____ processes, stores and transmits the information via _____ to various parts of the body where action occurs. The _____ nervous system connects parts of the body to the central nervous system by means of _____.

2. The neuron, a specialized cell, is made up of four parts: the axon, axon terminals, the cell body and dendrites. Match each part to one of the following statements.

a) They receive messages and transform them into nerve impulses. _____

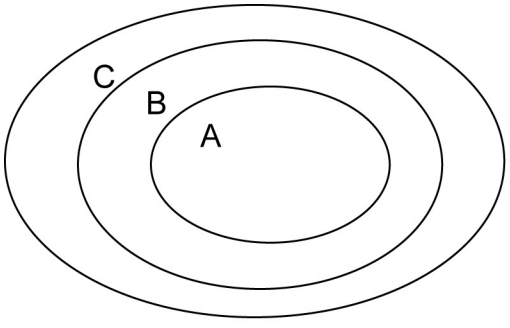
b) They transmit nerve impulses. _____

c) Nerve impulses travel through these long neuron extensions. _____

d) Central structure that holds the nucleus. _____

3. The diagram below illustrates the relationship among different structures of the nervous system. Match each ellipse to the corresponding term.

Nerves	Axons	Peripheral nervous system



A. _____

B. _____

C. _____

Name: _____ Group: _____ Date: _____

Nervous system, neuron, nerve impulse, peripheral nervous system, nerves (*continued*)

4. Match each nervous system structure to the corresponding description.

Nervous system structure	Description
a) Sensory receptors	1. Electrical message travelling from one neuron to another
b) Nerve impulse	2. Junction between two neurons
c) Synapse	3. Structures that transmit nerve impulses to muscles.
d) Neurotransmitters	4. Chemical substances secreted by axon terminals
e) Sensory nerves	5. Specialized nerve cells that recognize stimuli.
f) Motor nerves	6. Structures that transmit nerve impulses to sensory receptors in the central nervous system.

5. A person hears a very loud sound and takes a step back to move away from it. Place in order the structures through which the nervous impulse will travel.

Sensory nerve	Central nervous system	Stimulus (sound)
Motor nerve	Sensory receptors (ears)	Muscles

_____ → _____

→ _____ → _____

→ _____ → _____

6. Place a check mark beside each statement that does not apply specifically to neurons.

a) Require a great deal of oxygen and glucose. ☐
b) There are about 100 billion in the human organism. ☐
c) Help the nervous system function. ☐
d) Can live for only a few days. ☐
e) Transform a stimulus into a nerve impulse. ☐

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THE NERVOUS AND MUSCULOSKELETAL SYSTEMS (*continued*)

STUDENT BOOK	Ch. 7, pp. 206–212

Central nervous system

1. What is the connection between the brain, the brain stem, the cerebrum and the cerebellum? Circle the correct answer.

a) The cerebrum contains the cerebellum and the brain stem contains the brain.
b) The brain contains the cerebellum and the brain stem contains the cerebrum.
c) The brain is made up of the brain stem, the cerebrum and the cerebellum.
d) The brain stem contains the cerebrum, the cerebellum and the brain.

2. What am I?

a) We are the membranes that protect the cerebrum and the spinal cord. _____
b) I control voluntary movement. _____
c) We are the solid structure that protects the spinal cord. _____
d) I control the organism's equilibrium. _____
e) I control involuntary movement. _____

3. Use the following terms to identify the location of the nervous system structures listed below. Terms may be used more than once.

Spinal cord	Cerebrum	Skull	Brain	Spine

Nervous system structure

a) Cranial nerves _____
b) Grey matter _____
c) Spinal nerves _____
d) Meninges _____
e) Spinal cord _____
f) Brain _____

Central nervous system (*continued*)

4. Match the following types of movements to the corresponding situations listed below.

A. Voluntary movement B. Involuntary movement C. Reflex

a) Withdrawing your hand from a hot barbecue grill _____

b) Motions of the digestive system to digest an ice cream cone _____

c) Reading an adventure novel _____

d) Protecting your head when near a falling object _____

e) Turning your head to see a friend _____

f) Breathing during sleep _____

5. The descriptions below refer to nerves of the central nervous system.

A. There are 31 pairs.
B. Path taken by nerve impulses to the brain stem (during involuntary movement)
C. Path taken by nerve impulses from the cerebrum to the muscles (during voluntary movement)
D. Circulation of nerve impulses during reflexes
E. There are 12 pairs.
F. Communication between the brain and the organism

Match the above descriptions to the corresponding type of nerves. Certain descriptions may correspond to more than one type of nerve.

Spinal nerves: _____

Cranial nerves: _____

Sensory nerves: _____

Motor nerves: _____

Name: _____ Group: _____ Date: _____

THE NERVOUS AND MUSCULOSKELETAL SYSTEMS (*continued*)

STUDENT BOOK	Ch. 7, pp. 213–220

Sensory receptors, sensory organs

1. True or false?

a) Sensory receptors are distributed throughout the organism. _____

b) Sensory receptors pick up only external stimuli. _____

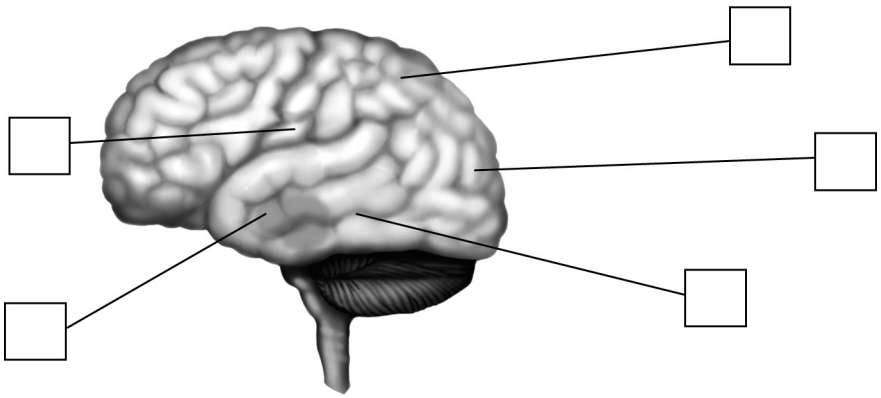
c) Sensory receptors are specialized nerve cells. _____

d) Sensory receptors connected to sensory organs can pick up stimuli only from the external environment. _____

2. Sensory organs possess a specialized structure that contains sensory receptors. Match each sensory organ to its structure.

Sensory organ	Structure containing sensory receptors
a) Eye	1. Olfactory epithelium
b) Ear	2. Taste buds
c) Skin	3. Retina
d) Nose	4. Cochlea
e) Tongue	5. Dermis

3. Match the senses below to their corresponding region of the brain in the illustration.



Sense: A. Hearing B. Vision C. Taste D. Smell E. Touch

Sensory receptors, sensory organs (*continued*)

4. What transforms stimuli picked up by sensory organs into nerve impulses?

a) the brain
b) sensory receptors
c) the spinal cord
d) sensory nerves

5. For each of the two sensory organs below, place their respective terms in order starting from the stimulus to the brain's perception.

a) In the ear:

Auditory nerve	Cerebrum	Perception of sound	Cochlea	Sound waves

_____ → _____ → _____
→ _____ → _____

b) In the nose:

Olfactory epithelium	Olfactory nerve	Odour	Perception of odour	Cerebrum

_____ → _____ → _____
→ _____ → _____

6. Complete the sentences below.

_____ are nerve cells present on the surface of the _____.
They make it possible to see _____._____ are nerve cells that make it possible to see _____ in light intensity.

Name: _____ Group: _____ Date: _____

STUDENT BOOK	Ch. 7, pp. 221–228

THE MUSCULOSKELETAL AND NERVOUS SYSTEMS (*continued*)

Musculoskeletal system, function of bones, joints and muscles, types of muscles, joint movements

1. Use the following words to complete the text below. Terms may be used more than once.

mobility	bladder	muscles
size	heart	joints
bones	skeleton	shape

The musculoskeletal system is made up of _____, _____ and _____. The _____ is made up of _____. The tissue of _____ is the hardest material found in the body. Bones are classed into four different categories according to their _____ and their _____. _____ are junction points between two or more bones. The composition and degree of _____ differ from one joint to another. _____ are tissues that surround and are attached to the bones. Some muscles also make up the wall of organs such as the _____, the uterus and the stomach. An organ, the _____, consists of a unique muscle in the organism.

2. Name the three functions of bones.

_____

_____

_____

3. True or false?

a) All bones are composed of spongy bones and compact bones. _____

b) Bones of the skull and shoulder blades are flat. _____

c) The spine is composed of regular-shaped bones. _____

d) The rounded end of a long bone is called *epiphysis*. _____

e) Flat bones are made up of two layers of spongy bone. _____

f) The tibia is an example of a long bone. _____

g) Short bones are found in the fingers and the toes. _____

Name: _____ Group: _____ Date: _____

Musculoskeletal system, function of bones, joints and muscles, types of muscles, joint movements (*continued*)

4. Match the types of muscles to the appropriate description.

Muscle:	A. Smooth muscle	B. Skeletal muscle	C. Heart muscle

Description

a) Involuntary and highly resistant to fatigue _____

b) Striated, involuntary, strong and unique _____

c) Voluntary, connected to bone by a tendon _____

d) Works slowly. _____

e) Tires quickly. _____

f) Thigh muscle _____

5. Match each action in the left column to the corresponding type of joint movement.

Action	Joint movement
a) Making circles with the arms	1. Extension
b) Lifting a leg straight out	2. Abduction
c) Bending an arm	3. Adduction
d) Unbending the knees	4. Rotation
e) Bringing both legs together	5. Inflection

6. What muscle is the only one of its type found in the organism?

_____