

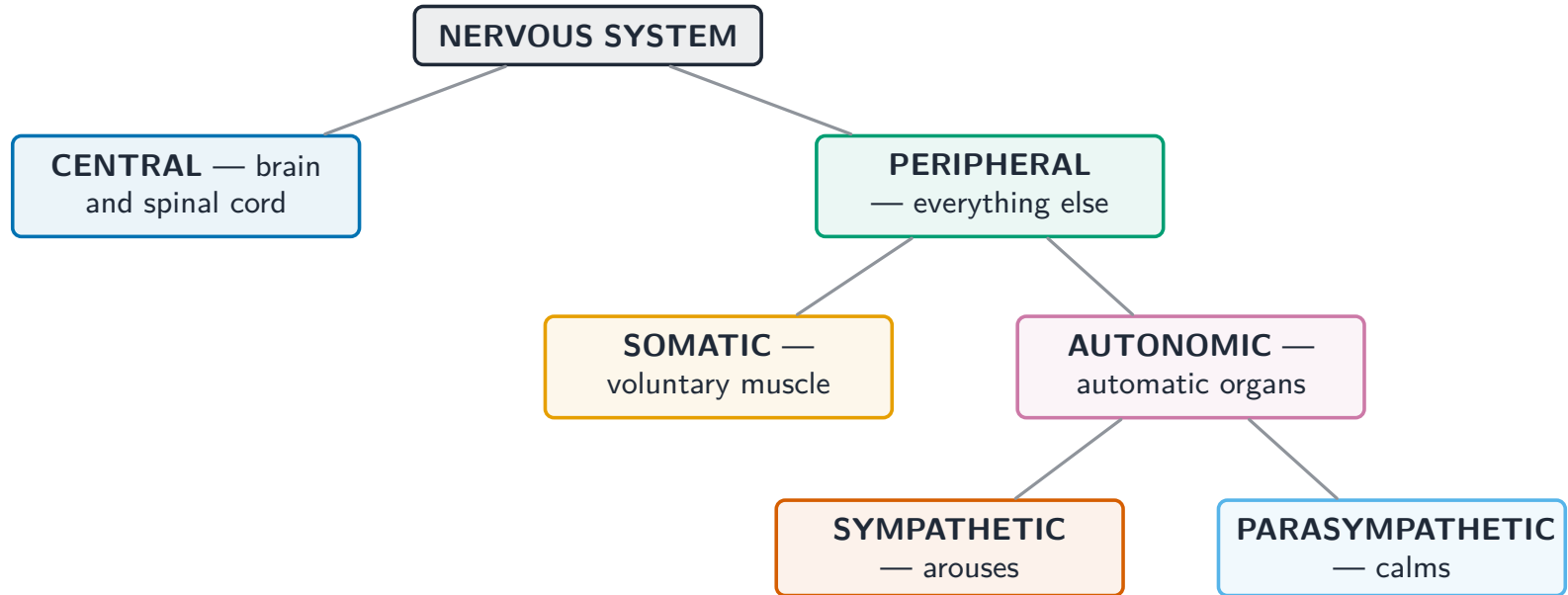
Exercise walk-through

1.2

Overview of the Nervous System

AP Psychology

Locate the division before naming its function



The **central nervous system (CNS)** is brain and spinal cord. The **peripheral nervous system (PNS)** links the CNS with the rest of the body. Somatic and autonomic are subdivisions of the PNS.

One event can recruit several nervous-system divisions

A presentation starts unexpectedly

A student chooses to raise a hand, notices a faster heartbeat, and later experiences a slowing heart rate during recovery. Identify the division most directly associated with each response and cite the clue that supports it.

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Do not classify the whole event as only voluntary or only automatic. Classify the particular response described.

Match the response to the pathway and the evidence

Raising the hand deliberately involves **voluntary** skeletal movement: the **somatic nervous system** carries motor commands to those muscles.

Heartbeat is an **involuntary** process governed by the **autonomic nervous system**. Its **sympathetic nervous system** branch supports arousal; its **parasympathetic nervous system** branch supports recovery and a slower heart rate.

These PNS pathways interact with the CNS. Naming a peripheral division does not mean the brain and spinal cord are uninvolved. Nor does a racing heart alone identify one particular emotion.

Response in the case → relevant function → named division. A label without the link is incomplete reasoning.

The divisions of the nervous system

Central nervous system

The **central nervous system (CNS)**: brain and spinal cord – where information is integrated and decisions are made.

Peripheral nervous system

The **peripheral nervous system (PNS)**: everything else, split into somatic (voluntary) and autonomic (automatic).

The three neuron types

Sensory neurons carry in, **motor neurons** carry out, and **interneurons** connect them inside the CNS.

The reflex arc

A **reflex arc** routes sensory to motor through the spinal cord, so a withdrawal can begin before conscious awareness; signals also travel toward the brain.

Name the division *and* the direction. Use sensory for input toward the CNS and motor for output toward muscles.

Exercises 2.1-2.2

2.1 Name the two structures that make up the central nervous system. [2]

2.2 State one function of the somatic nervous system and one of the autonomic. [2]

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2.1 Name the two structures that make up the central nervous system. [2]

2.1

- the brain; the spinal cord
-

2.2 State one function of the somatic nervous system and one of the autonomic. [2]

2.2

- somatic: carries sensory information and controls voluntary skeletal muscle; autonomic: controls involuntary processes such as heart rate or digestion

Exercise 2.3 (a)

2.3 A student is startled by a loud noise.

(a) State which autonomic branch is activated.

[1]

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[1]

(a)

- the sympathetic branch

Exercise 2.3 (b)

2.3 A student is startled by a loud noise.

(b) State two bodily changes that branch produces.

[2]

Exercise 2.3 (b)

2.3 A student is startled by a loud noise.

(b) State two bodily changes that branch produces.

[2]

(b)

- any two of: heart rate rises; pupils dilate; digestion is suppressed; breathing quickens

Exercises 3.1-3.2

3.1 Slowing of the heart after a stressful event is produced mainly by the

[1]

☐

A sympathetic nervous system

B parasympathetic nervous system

C somatic nervous system

D central nervous system

3.2 Compared with neural signalling, endocrine signalling is

[1]

☐

A faster and more targeted

B slower and more widespread

C identical in speed

D confined to the brain

Exercises 3.1-3.2

3.1 Slowing of the heart after a stressful event is produced mainly by the

[1]

- ☐ A sympathetic nervous system
B parasympathetic nervous system
C somatic nervous system
D central nervous system

3.1 B

- the parasympathetic branch restores the body after arousal

3.2 Compared with neural signalling, endocrine signalling is

[1]

- ☐ A faster and more targeted
B slower and more widespread
C identical in speed
D confined to the brain

3.2 B

- hormones travel in the bloodstream to every tissue and act over a longer period

Exercise 3.3 (a)

3.3 A person's hand jerks back from a hot surface before they feel pain.

(a) State which division carries the motor command to the muscle.

[1]

Exercise 3.3 (a)

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(a) State which division carries the motor command to the muscle.

[1]

(a)

- the somatic nervous system

Exercise 3.3 (b)

3.3 A person's hand jerks back from a hot surface before they feel pain.

(b) Explain why the movement can occur before the brain registers pain.

[2]

Exercise 3.3 (b)

3.3 A person's hand jerks back from a hot surface before they feel pain.

(b) Explain why the movement can occur before the brain registers pain. [2]

(b)

- a reflex arc is completed in the spinal cord, so the motor command is issued before the signal reaches the brain for conscious processing