

Exercise walk-through

1.4

The Biology of Behaviour

GAC Psychology

You must be able to

- trace a signal through a neuron and synapse
- explain the role of neurotransmitters
- distinguish central and peripheral nervous systems

1

The method

Method — Cross the gap

A neuron receives signals at dendrites and sends a signal along its axon. A **synapse** 突触 is the gap between neurons. **Neurotransmitters** 神经递质 carry a signal across it chemically.

The central nervous system is the brain and spinal cord. The peripheral nervous system is the nerves connecting it to the body. A reflex can be handled quickly through the spinal cord.

2

Practice

Practice 2.1 ■ 1 mark

Define a synapse.

Solution 2.1

Worked steps

- The gap between two neurons. **B1**

Practice 2.2 ■ 1 mark

State what carries a signal across a synapse.

Solution 2.2

Method: Cross the gap — p.4

Worked steps

- Neurotransmitters. **B1**

Practice 2.3 ■ 2 marks

Explain why touching a hot surface can produce a quick reflex.

Solution 2.3

Worked steps

- The signal can be processed through the spinal cord. **B1**
- The hand moves before a slow conscious decision is needed. **A1**

3

Exam-style

Exam-style 3.1 ■ 4 marks

Explain how a message passes from one neuron to another.

Solution 3.1

Worked steps

- A signal travels along the first neuron's axon. **B1**
- It reaches the synapse. **A1**
- Neurotransmitters cross the gap chemically. **A1**
- The next neuron receives the message. **B1**

Exam-style 3.2 ■ 4 marks

Compare the central nervous system with the peripheral nervous system.

Solution 3.2

Method: Cross the gap — p.4

Worked steps

- The central nervous system includes brain and spinal cord. **B1**
- It processes and coordinates signals. **A1**
- The peripheral nervous system is the nerves outside it. **A1**
- It carries signals between the central system and the body. **B1**