

GCSE Biology

Worksheet: The brain

TIME 25 min	TOTAL 24 marks	CALCULATOR Allowed	DIFFICULTY Easy, Medium
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Topics: The brain

NAME _____

CLASS _____

DATE _____

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Answer all questions in the spaces provided.
- In all calculations, show clearly how you work out your answer.
- The marks for questions are shown in brackets.

0 1

The brain controls complex behaviour. It is made of billions of interconnected neurones and has different regions that carry out different functions.

0 1 . 1

Which part of the brain controls unconscious activities such as the heartbeat and breathing?

Tick (✓) **one** box.

Cerebellum

☐

Cerebral cortex

☐

Medulla

☐

Spinal cord

☐

[1 mark]

0 1 . 2

Which part of the brain is responsible for the coordination of muscular activity?

.....

.....

.....

[1 mark]

0 1 . 3

Give **two** functions of the cerebral cortex.

[2 marks]

0 2

The brain has different regions that carry out different functions.

0 2 . 1

Match each region to its main function: cerebellum, cerebral cortex, medulla.

- controls unconscious actions such as heart rate and breathing
- responsible for consciousness, intelligence, memory and language
- coordinates muscular activity and balance

[3 marks]

0 2 . 2

Which region would be most affected if a person had difficulty keeping their balance while walking?

Tick (✓) **one** box.

Cerebral cortex

☐

Cerebellum

☐

Medulla

☐

Spinal cord

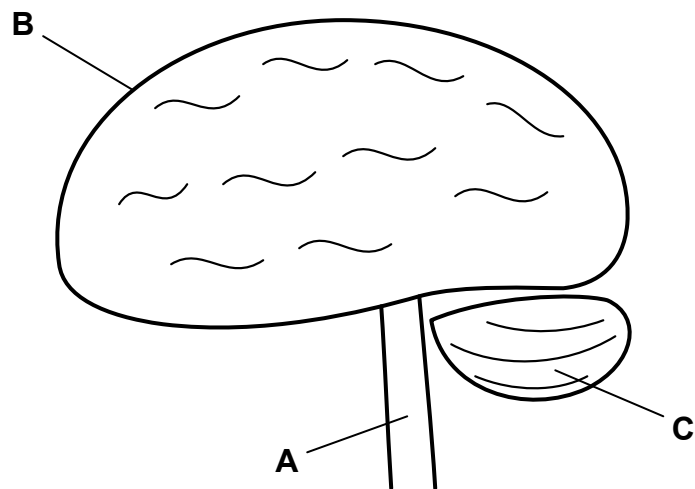
☐

[1 mark]

0 3

Figure 1 shows a side view of the human brain.

Figure 1



0 3 . 1

Name the parts of the brain labelled **A**, **B** and **C** in Figure 1.

.....

.....

.....

.....

.....

.....

[3 marks]

0 3 . 2

Which letter labels the part of the brain that coordinates muscular activity and balance?

.....

.....

.....

.....

[1 mark]

0 3 . 3

Give **one** function of part **B**.

.....

.....

[1 mark]

0 3 . 4

Give **one** function of part **A**.

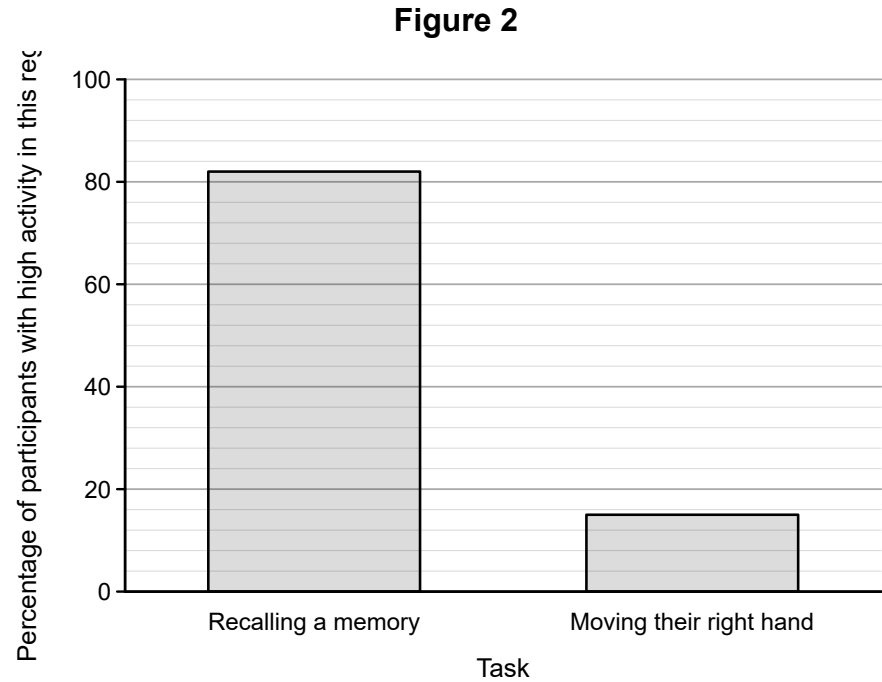
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.....

[1 mark]

0 4

Figure 2 shows the percentage of research participants who showed high activity in a particular brain region while doing two different tasks.



0 4 . 1

Which task was linked to much higher activity in this brain region?

.....

.....

[1 mark]

0 4 . 2

Suggest what this data shows about the function of this brain region.

.....

.....

.....

.....

[2 marks]

0 4 . 3

Suggest why scientists would want to test many participants, and more than one type of task, before drawing a conclusion about this region's function.

.....

.....

.....

.....

[2 marks]

0 5

A patient had a stroke that affected a small area of their cerebellum. During an examination, the patient found it difficult to touch their nose accurately with their finger when their eyes were closed, and their walking was unsteady.

0 5 . 1

Explain why damage to the cerebellum could cause these symptoms.

.....

.....

.....

.....

[2 marks]

0 5 . 2

The patient’s memory and speech were not affected.
Explain why, in terms of the regions of the brain involved.

.....

.....

.....

.....

[2 marks]

0 5 . 3

Suggest **one** everyday activity, other than walking, that this patient might find more difficult.

.....

.....

[1 mark]

END OF QUESTIONS

Original practice questions written to match the specification. Not produced by, affiliated with or endorsed by AQA.

Mark scheme

GCSE Biology · Worksheet: The brain · 24 marks

Question 1 (4 marks)

01.1 [1 mark]

Correct: Medulla

01.2 [1 mark]

Answer: Cerebellum

- cerebellum (1)
-

01.3 [2 marks]

- consciousness (1)
- intelligence (1)
- memory (1)
- language (1)

Any 2 of the points above.

Question 2 (4 marks)

02.1 [3 marks]

- medulla — controls unconscious actions such as heart rate and breathing (1)
 - cerebral cortex — responsible for consciousness, intelligence, memory and language (1)
 - cerebellum — coordinates muscular activity and balance (1)
-

02.2 [1 mark]

Correct: Cerebellum

Question 3 (6 marks)

03.1 [3 marks]

Answer: A: medulla; B: cerebral cortex; C: cerebellum

- A: medulla (1)
- B: cerebral cortex (1)
- C: cerebellum (1)

Notes: Allow 'medulla oblongata' for A, but not 'brain stem'. Allow 'cerebrum' for B.

03.2 [1 mark]

Answer: C

- C (1)
-

03.3 [1 mark]

- consciousness (1)
- intelligence / thinking (1)
- memory (1)
- language (1)

Any 1 of the points above.

03.4 [1 mark]

- controls heart rate (1)
- controls breathing (1)
- controls other unconscious activities (1)

Any 1 of the points above.

Question 4 (5 marks)

04.1 [1 mark]

- recalling a memory (1)

04.2 [2 marks]

- this region is likely to be involved in memory, or a similar function related to recalling information (1)
- activity was much higher during the memory task than during the hand-movement task (1)

04.3 [2 marks]

- different people can show some variation, so testing many participants makes the pattern more reliable (1)
- testing several different tasks makes sure the region is specifically linked to this function, and not simply active during any task (1)

Question 5 (5 marks)

05.1 [2 marks]

- the cerebellum coordinates muscular activity and balance (1)
- with this region damaged, the precise, coordinated muscle movements needed for accurate finger movements and steady walking are affected (1)

05.2 [2 marks]

- memory and speech are mainly controlled by the cerebral cortex, not the cerebellum (1)
- because this stroke affected only the cerebellum, the regions responsible for memory and speech were not damaged (1)

05.3 [1 mark]

- writing (1)
- catching or throwing a ball (1)
- any other activity needing fine or well-coordinated movement (1)

Any 1 of the points above.
