

TWENTY FIRST CENTURY
science

Module B6

BRAIN and MIND

Practice test

FOUNDATION

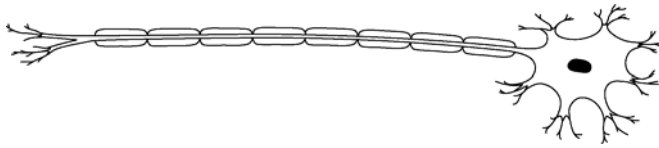
Name:

Form/teaching set:

Answer all of the questions.

Write your answers in the spaces provided on this paper.

1 The diagram shows a motor neuron.



What is the name of the long, thin part of the neuron?

Put a **ring** around the correct word.

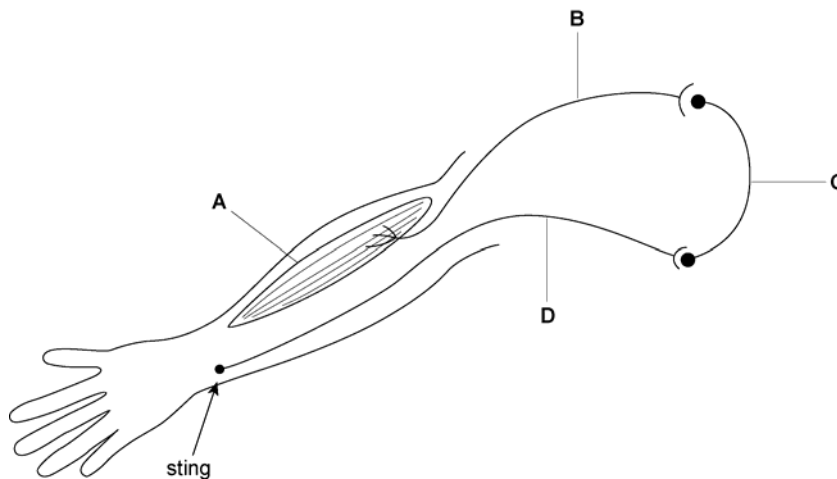
axon nucleus receptor synapse

[1]

[Total marks: 1]

2 A wasp stung Andrew's hand as he picked plums.

The diagram shows the reflex arc for his hand.



(a) (i) Which of the labels **A, B, C** or **D** shows a sensory neuron? [1]

(ii) Which of the labels **A, B, C** or **D** shows a motor neuron? [1]

(b) Andrew's reaction was to pull his hand away quickly. This was a reflex action.

Which part of his central nervous system is in this reflex arc?

..... [1]

(c) The next time Andrew passed the plum tree, he felt nervous.

Which statement best describes this reaction?

Put a tick (✓) in the **one** correct box.

It is a simple reflex action.

Andrew is frightened.

It is a conditioned reflex.

It is a newborn reflex.

[1]

[Total marks: 4]

3 Humans are said to possess five senses.

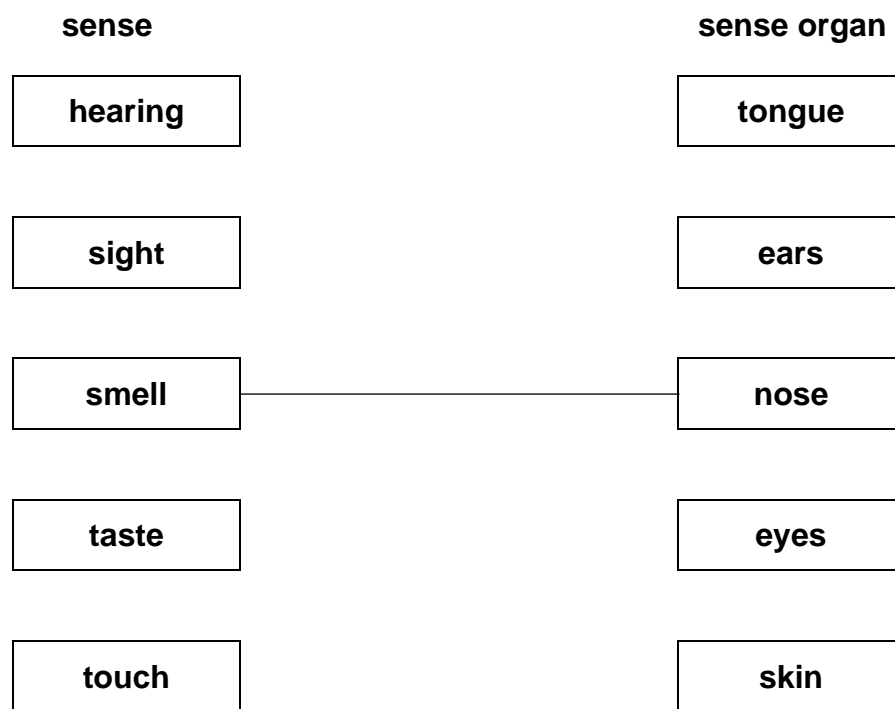
Sense organs give us information about conditions around us.

The left-hand boxes show the names of these senses.

The right-hand boxes show parts of the body which contain sense organs.

Join each **sense** to the part of the body which contains **organs** for the sense.

One has been done for you.



[3]

[Total marks: 3]

4 Each of the four things in this list form part of the human nervous system:

brain

motor neuron

sensory neuron

spinal cord

Which two of these make up the central nervous system?

1

2

[2]

[Total marks: 2]

5 Simon looks out of his window.

In the garden, a cat is creeping up on a bird.

Suddenly, the bird sees the cat.

Very quickly, the bird flaps its wings and flies away.

(a) Put each word from this list in the correct right-hand box to match each part of the action Simon sees.

effectors receptors response stimulus

action	this involves
the cat creeps closer	
the bird flaps its wings	
muscles move the wings	
light sensitive cells in the bird's eyes react	

[3]

(b) The action shown by the bird is a very quick involuntary reaction.

What is the scientific name for this type of reaction?

..... [1]

[Total marks: 4]

6

MDMA was first made in 1914 by a German drug company.

Scientists thought this drug could be used as a slimming aid, by making people feel less hungry.

In the 1980s it was used by doctors to change the mood of their patients. Soon after, people began to take the drug illegally in tablets called Ecstasy.

MDMA works by increasing the concentration of a chemical called serotonin in the brain. This chemical allows impulses to travel across some of the synapses in the brain.

(a) Write down two effects of MDMA (Ecstasy).

.....

..... [2]

(b) MDMA has an effect on the synapses in the brain.

What is a synapse?

.....

..... [2]

(c) Write down the effects of Ecstasy (MDMA) on the brain.

.....

.....

.....

..... [2]

[Total marks: 6]

[Total marks for the test: 20]

TWENTY FIRST CENTURY
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HIGHER

Name:

Form/teaching set:

Answer all of the questions.

Write your answers in the spaces provided on this paper.

1 Simon looks out of his window.
 In the garden, a cat is creeping up on a bird.
 Suddenly, the bird sees the cat.

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(a) Put each word from this list in the correct right-hand box to match each part of the action Simon sees.

effectors receptors response stimulus

action	this involves
the cat creeps closer	
the bird flaps its wings	
muscles move the wings	
light sensitive cells in the bird's eyes react	

[3]

(b) The action shown by the bird is a very quick involuntary reaction.

What is the scientific name for this type of reaction?

.....

[1]

[Total marks: 4]

2 Scientists think that the brain has a greatly reduced ability to learn language after puberty.

(a) Which part of the brain is most concerned with language?

..... [1]

(b) (i) Studies of children who have been isolated (feral children) have helped to support this idea.

Which of the following statements, taken together, provide evidence for this?

Put ticks (✓) in the **three** correct boxes.

Isolated children have not been in language contact with others.

Puberty is the start of sexual maturity.

If found after puberty, feral children cannot learn language.

Some feral children have been raised by animals.

Boys' voices break at puberty.

Isolated children have not learned language.

[3]

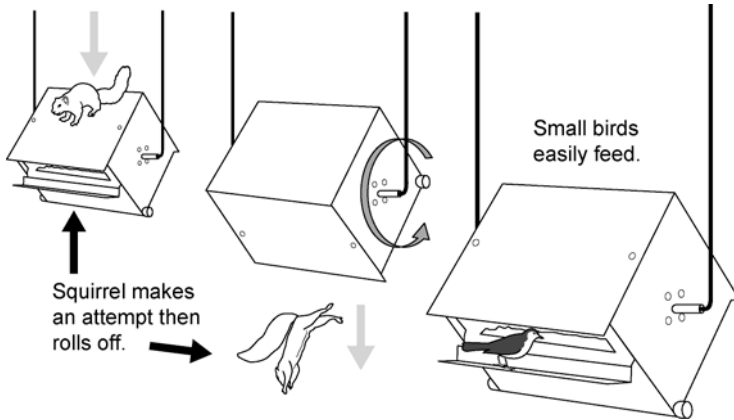
(ii) Scientists have not been able to carry out controlled experiments on children to further test this idea.

Suggest one reason why they cannot do this.

..... [1]

[Total marks: 5]

- 3 Simon buys a bird feeder to feed seeds to the birds in his garden.
An advert for the bird feeder says it stops squirrels eating the seeds.



Simon sees one squirrel try many times to get food from the feeder. At last the squirrel finds a way to get to the food. After this, it can get the food every time.

Explain this in terms of what changes have happened in the squirrel's brain.

.....

.....

.....

..... [3]

[Total marks: 3]

- 4 Explain the meaning of the term 'conditioned reflex'.

.....

.....

.....

..... [2]

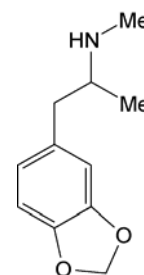
[Total marks: 2]

MDMA was first made in 1914 by a German drug company.

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In the 1980s it was used by doctors to change the mood of their patients. Soon after, people began to take the drug illegally in tablets called Ecstasy.

MDMA works by increasing the concentration of a chemical called serotonin in the brain. This chemical allows impulses to travel across some of the synapses in the brain.



(a) Explain how taking Ecstasy (MDMA) can change a person's mood.

.....

.....

.....

..... [3]

(b) Serotonin is one of a number of chemicals that allow impulses to travel across a synapse.

Explain in detail how serotonin does this.

.....

.....

.....

..... [3]

[Total marks: 6]

[Total marks for the test: 20]