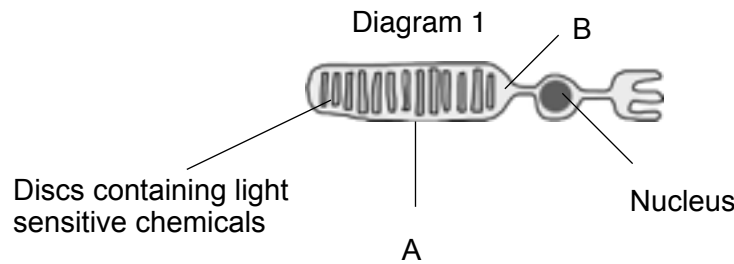


1 The eye has a layer of cells at the back which make up a tissue called the retina. The job of the retina is to detect light.

The diagram shows one light receptor cell found in the retina.



1 (a) (i) Name parts A and B shown in the diagram

Make sure you know the basic cell parts. You won't be asked about specialised parts of light receptor cells.

[2 marks]

Part A Cell membrane [1]

Part B Cytoplasm [1]

1 (a) *In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.*

A reflex action helps the body to protect itself from damage.

A person accidentally touches a very hot object. This starts a reflex action.

Describe as fully as you can, how a reflex action occurs.

[6 marks]

0 marks	Level 1 (1-2 marks)	Level 2 (3-4 marks)	Level 3 (5-6 marks)
No relevant content	<p>There is a simple description of a reflex action with some of the cell types mentioned.</p> <p>There is no clear idea of the order of the parts or cells in the reflex arc.</p>	<p>There is a clear description of a reflex action which gives the order of most of the parts.</p>	<p>There is a detailed description of a reflex arc with all cells names in order.</p> <p>The type of impulse in the neurone and synapses is described.</p>

Some points that might be mentioned:

**Stimulus** or heat detected by **temperature receptors** in skin [1]

**Impulses** travel along **sensory neurones** to **spinal cord** / CNS [1]

Chemical transmission across **synapses** [1]

Through a **relay neurone** [1]

Impulses to muscle through a **motor neurone** [1]

to an **effector** [1]

Muscle / effector contracts, moving the hand away [1]

A straightforward question.  
Make sure you know the  
right order of neurones.

1 (b) The total distance travelled by a nerve impulse from beginning to end is 1.5 metres.

The speed of a nerve impulse is 75 metres per second.

Calculate the time taken for the nerve impulse to travel the total distance. [2 marks]

1.5 / 75 [1]

Answer = .....0.02 [2]..... seconds

1 (b) (i) In reality, the time taken to travel 1.5 metres is slightly longer.

Suggest why. [1 mark]

Impulse slowed across synapse because time taken for diffusion of chemical [1]

(Total 11 marks)

End