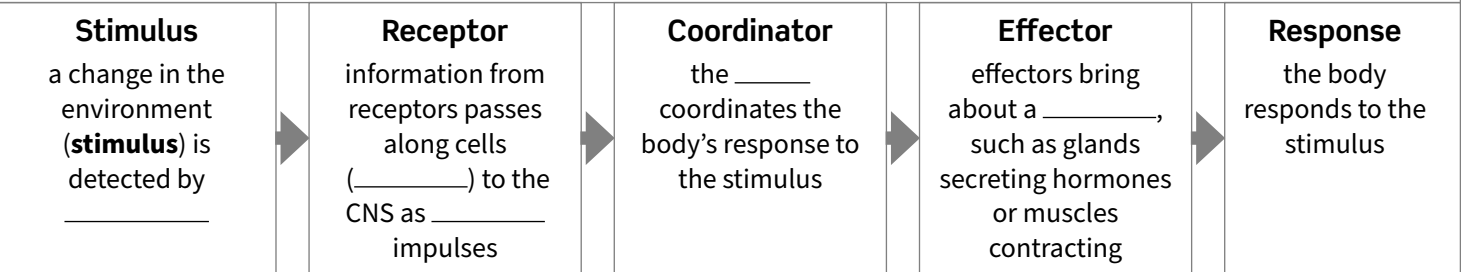


Chapter 10: The human nervous system

Knowledge organiser

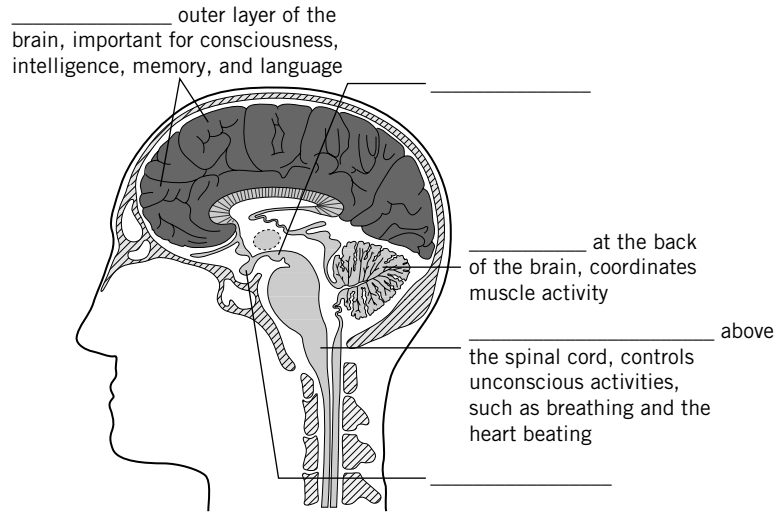
Nervous system responses



The brain

The brain controls complex behaviour.

It is made of billions of interconnected _____, with different regions that carry out different functions.



Accommodation

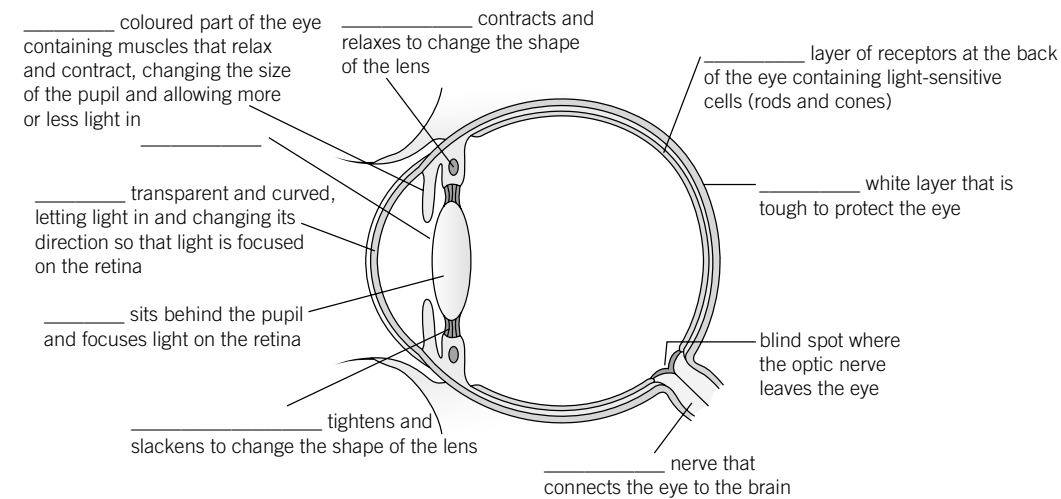
Accommodation is the process of changing the shape of the _____ to focus on near or distant objects.

- To focus on a *near* object
- ciliary muscles _____
 - suspensory ligaments are _____
 - so lens is _____ and more _____, and refracts light rays more strongly.

- To focus on a *distant* object
- ciliary muscles _____
 - suspensory ligaments are pulled _____
 - so lens is _____ and _____, and only refracts light rays slightly.

Structure of the eye

The eye is a **sense organ** containing **receptors** sensitive to _____ and _____.

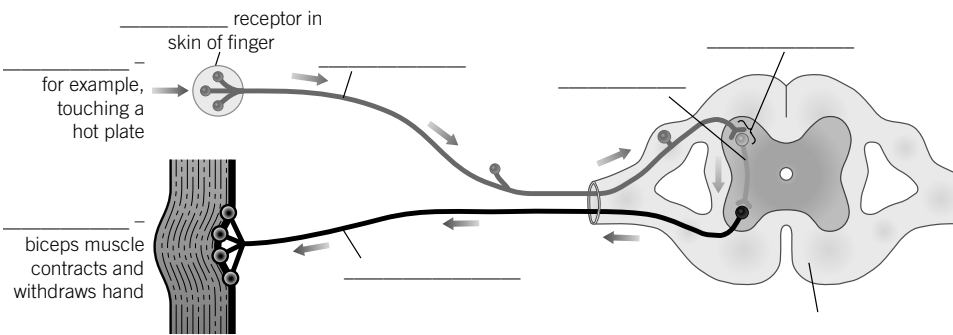


Reflex arcs

The nervous system is made up of the _____ (CNS) and a network of nerves. The CNS comprises the _____ and _____.

Reflex actions of the nervous system are automatic and rapid – they do not involve the _____ part of the brain.

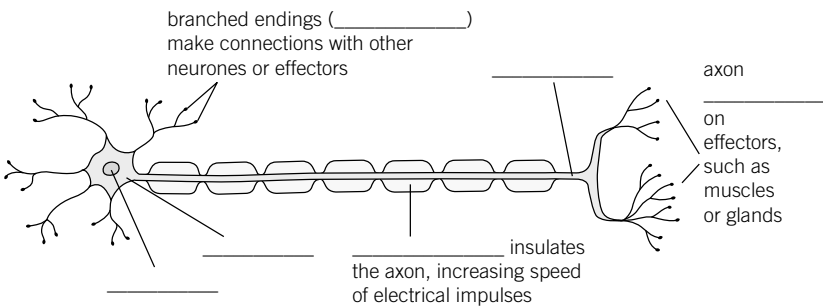
Reflex actions are important for _____ because they help prevent _____ to the body.



Reflex arc structures

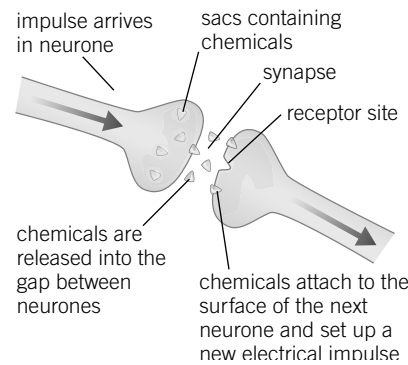
Neurones

Neurones carry _____ around the body – relay neurones connect sensory neurones to motor neurones



Synapses

Synapses are _____ between neurones, which allow electrical impulses in the nervous system to _____ between neurones



Research on the brain (HT only)

Neuroscientists have mapped the regions of the brain to particular functions by studying patients with brain damage, using scanning techniques, and electrically stimulating parts of the brain.

The brain is very complex and delicate, making investigating and treating brain disorders difficult.

Brain damage and diseases can involve many different neurones, chemicals, and areas of the brain. Treatment is difficult because

-
-
-

Common defects of the eyes

Myopia

Short-sightedness, when distant objects look _____ because rays of light _____ in front of the _____.

This is corrected using _____ spectacle lenses.

Hyperopia

Long-sightedness, when _____ objects look blurred because rays of light focus _____ the retina.

This is corrected using _____ spectacle lenses.

Treatment of eye defects

- _____ lenses to refract light rays to focus on the retina
- hard and soft contact lenses – like traditional glasses, but on the _____ of the eye
- laser eye surgery – to change the shape of the _____
- _____ lenses – adding another lens inside the eye to correct defects permanently.



Key terms

Make sure you can write a definition for these key terms.

brain central nervous system concave convex effectors hyperopia involuntary
myopia neurones receptors reflex action spinal cord stimulus synapse

Chapter 10: The human nervous system

Retrieval questions

Answer the following questions using the information from the knowledge organiser.

B10 questions		Answers
1	What is the function of the nervous system?	
2	What are the two parts of the central nervous system?	
3	Why are reflex actions described as rapid and automatic?	
4	Why are reflex actions important?	
5	Give the pathway of a nervous response.	
6	Give the function of the cerebral cortex.	
7	Give the function of the medulla oblongata.	
8	Give the function of the cerebellum.	
9	Why is it difficult to treat brain disorders?	
10	What is a synapse?	
11	What is the function of neurones?	
12	What is accommodation?	
13	Give two common defects of the eyes.	
14	How can eye defects be treated?	