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GCSE Biology Complete Revision Summary

BitPaper
Share Knowledge

Homeostasis and Response

Inheritance, Variation and Evolution

Ecology

Key Ideas

Coordination and control – The nervous system

Homeostasis
Human Nervous System
The Brain
The Eye
Thermoregulation
Endocrine System
Control of Blood Glucose
Osmoregulation
Human Reproduction
Contraception
Negative Feedback
Plant Hormones

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HOMEOSTASIS

The process of maintaining the constant internal environment.

- Temperature — Thermoregulation
- pH
- Blood Glucose
- Salt and Water Level — Osmoregulation

Nervous System and the Hormonal System

Homeostasis is important for the enzymes as the enzymes control all the reactions of the body and they need optimum condition to work.

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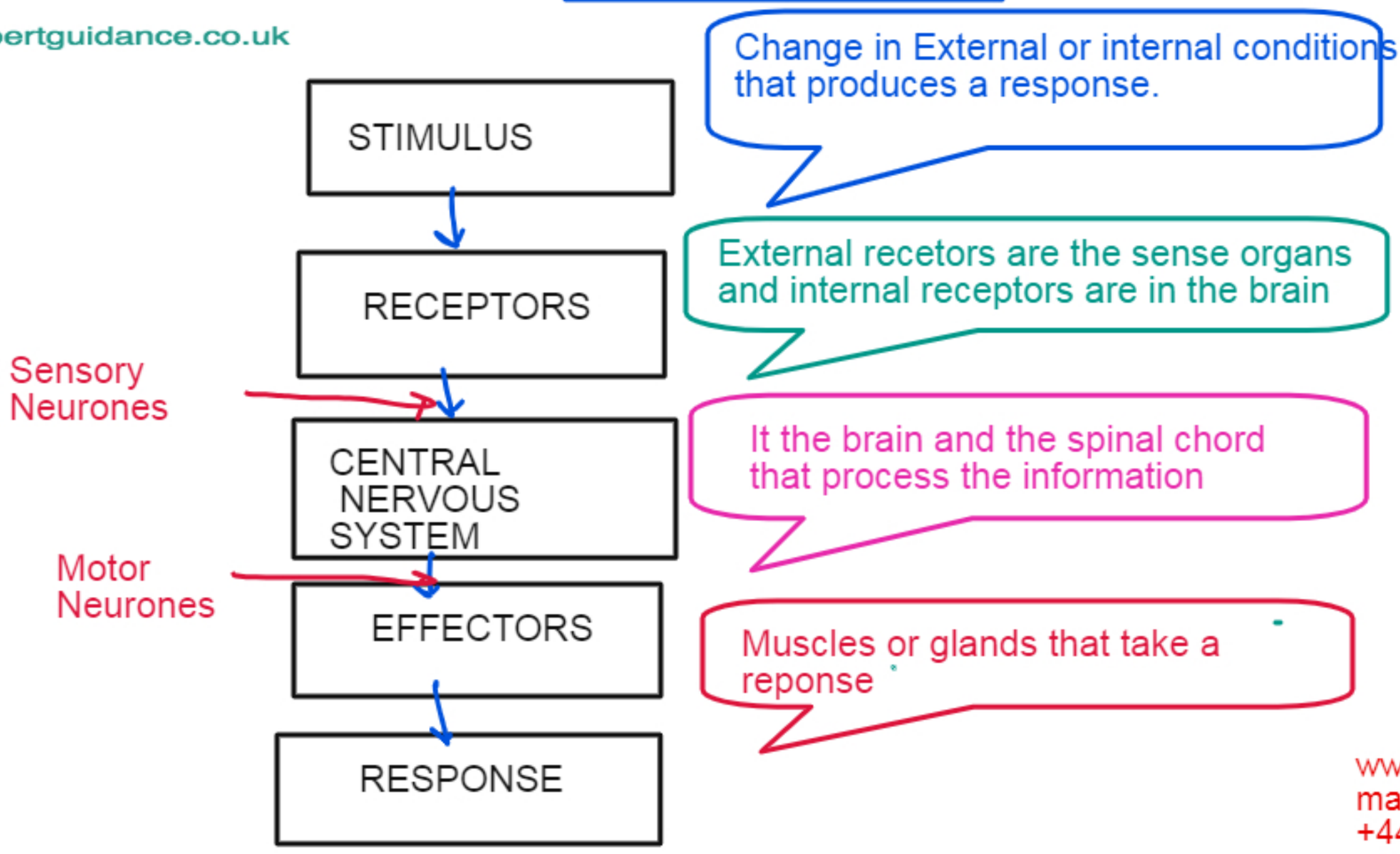
NERVOUS SYSTEM



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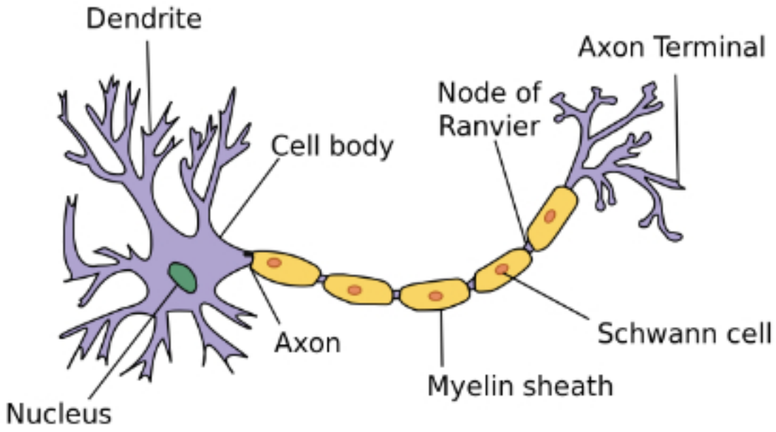
NEURONES

Motor Neurone

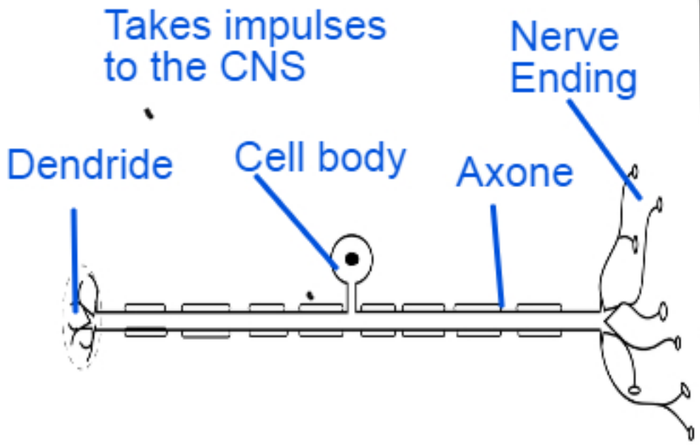
Takes impulses away from CNS



Motor neurones sends the message from the central nervous system to the effectors.

Sensory Neurone

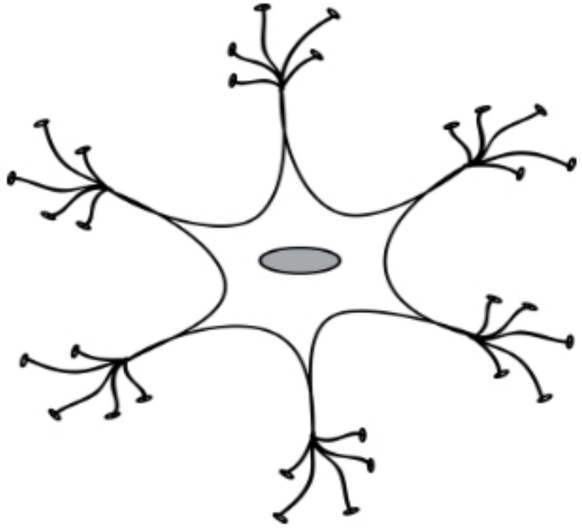
Takes impulses to the CNS



Sensory neurones send the message from the receptors to the central nervous system.

Relay Neurone

Found in CNS



Connect Sensory and Motor Neurones

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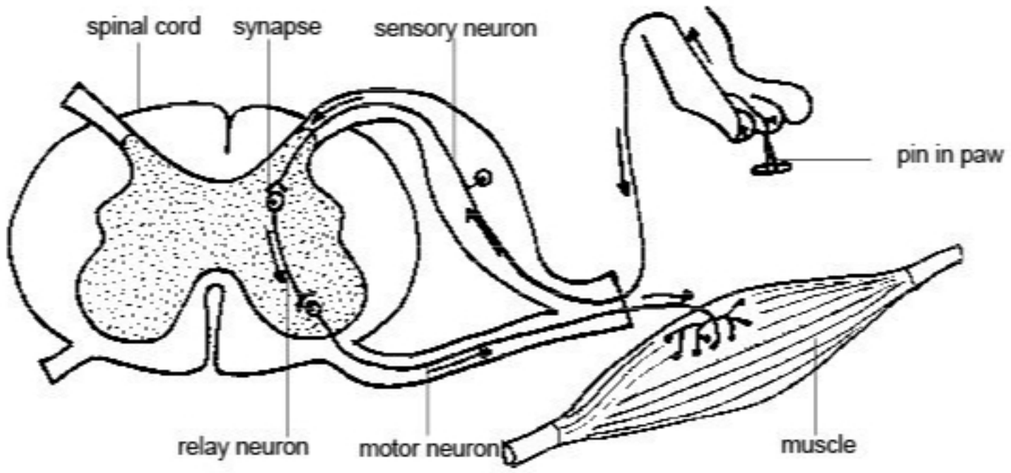
REFLEX ACTIONS



It is the automatic response of the body to a stimulus.

In reflex action the message from the sensory neurones is passed to the spinal chord instad of brain.

Spinal Chord sends the message to the effectors and produce a response.

Example: Knee Jerk Reflexes,
Touching hot object,
Sudden closure of light with bright light

It is rapid
It is quick
Automatic, Instantaneous
without consious thoughts

- Stimulus
- Receptor
- Sensory neurones
- Spinal Chord
- Motor Neurones
- Effector
- Response

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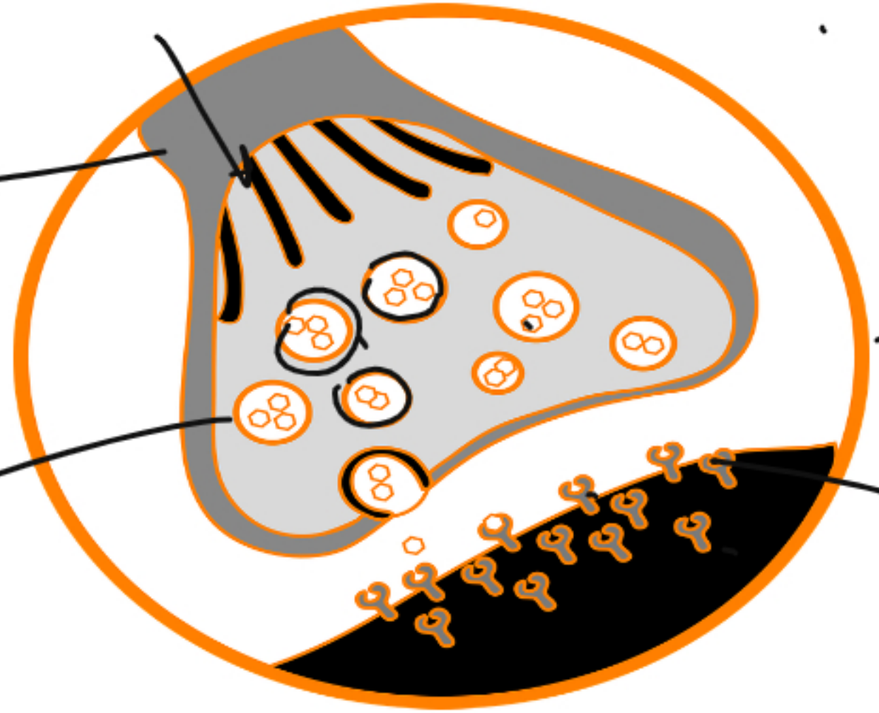
SYNAPSE

Message is transmitted by chemicals



Impulses arrives

Junction between two neurones

Vessicles containing neurotransmitter

Neurotransmitter generate impulses in the next neurone

Source: pixabay

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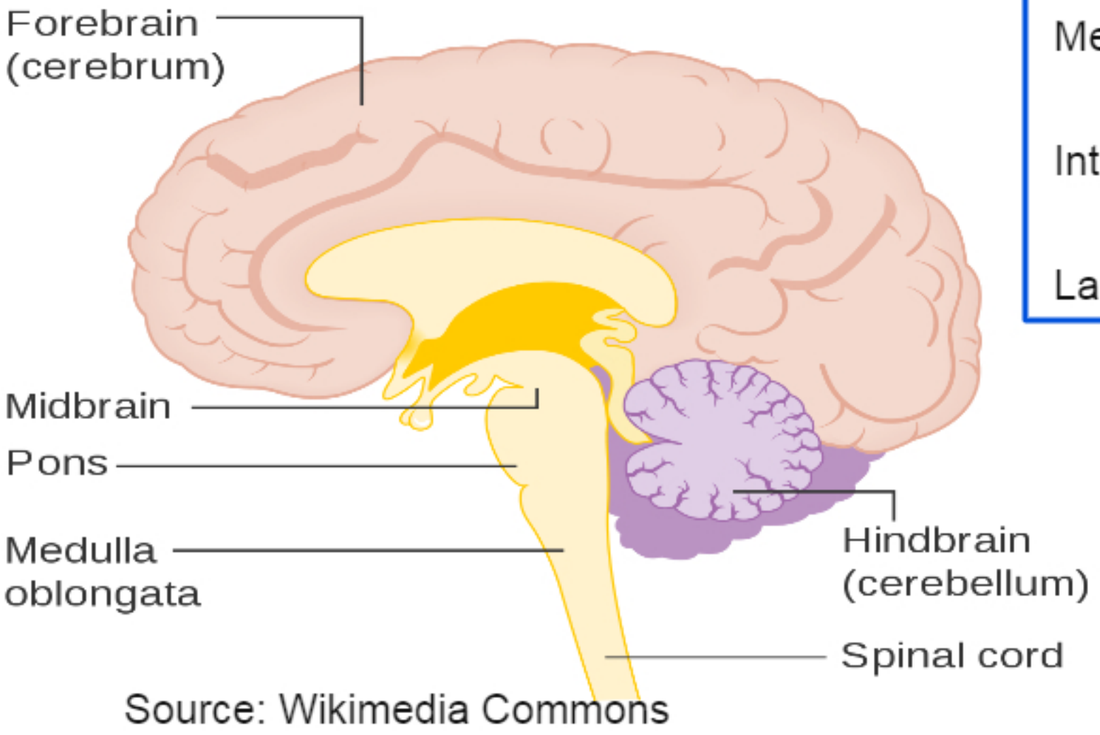
BRAIN

CEREBRUM

- Consiousness
- Memory
- Intelligence
- Language

CEREBELLUM

- Muscle Coordination
- Balance



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MEDULLA OBLONGATA

- Unconsious Activities
- like Heart Rate, Breathing.
- Gut Movement

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BRAIN SCAN

Magnetic Resonance Imaging (MRI) helps to take the images of different parts of the brain and relating it with loss of functions of the individual

Problems

Brain is complex
Skull protects the brain
Thousands and neurones and neurotransmitter are involved
The functions of different parts is still not understood.
Drugs do not reach the brain

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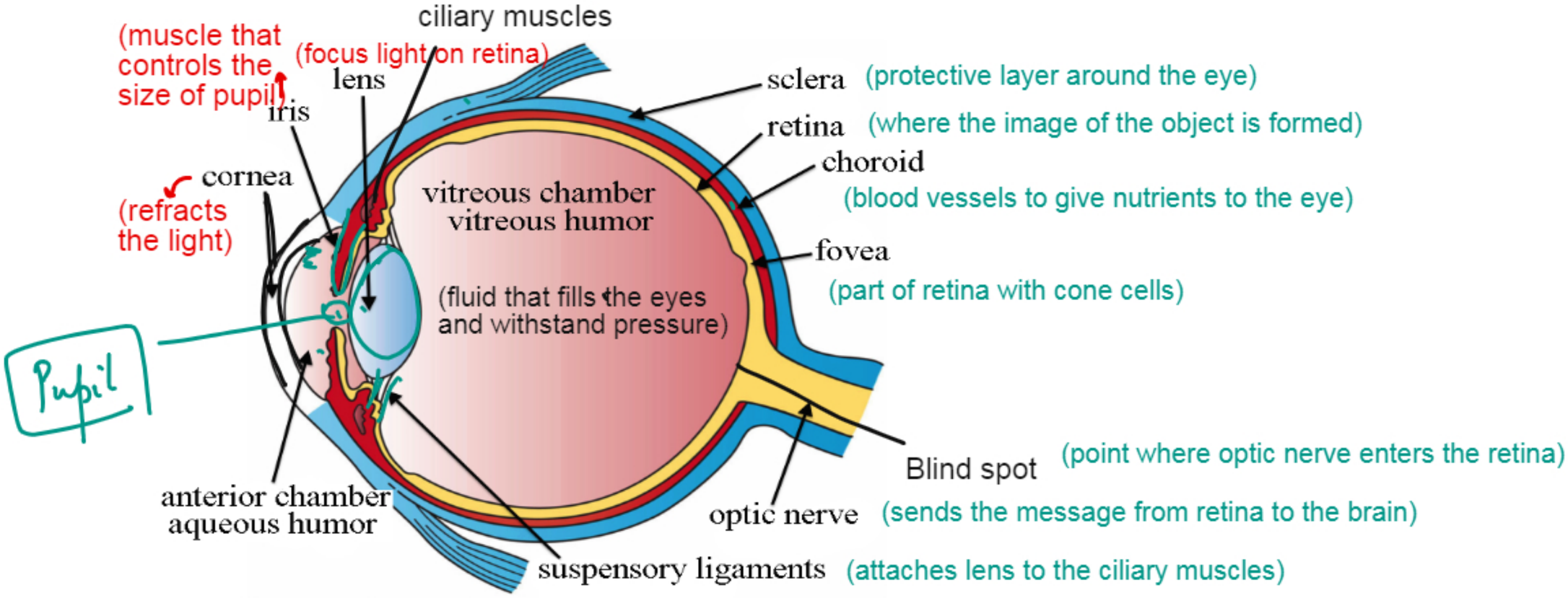
EYE

contracts and relaxes to change the shape of the lens.



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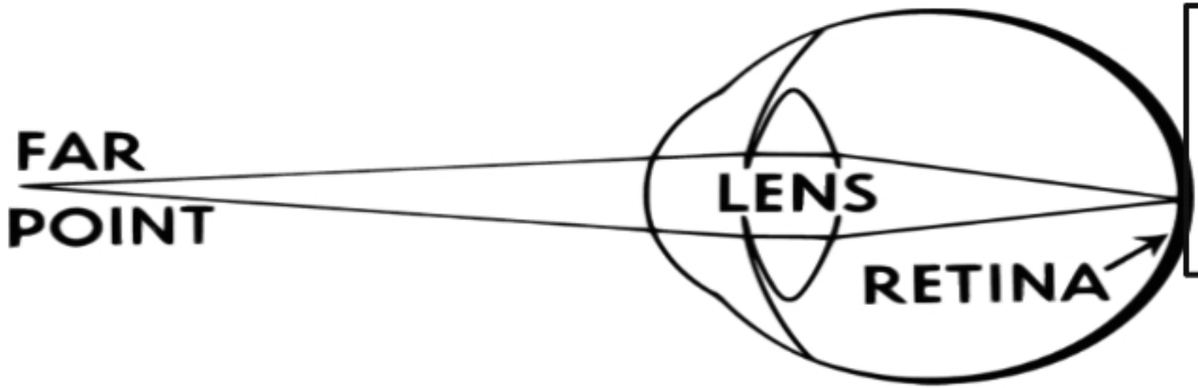
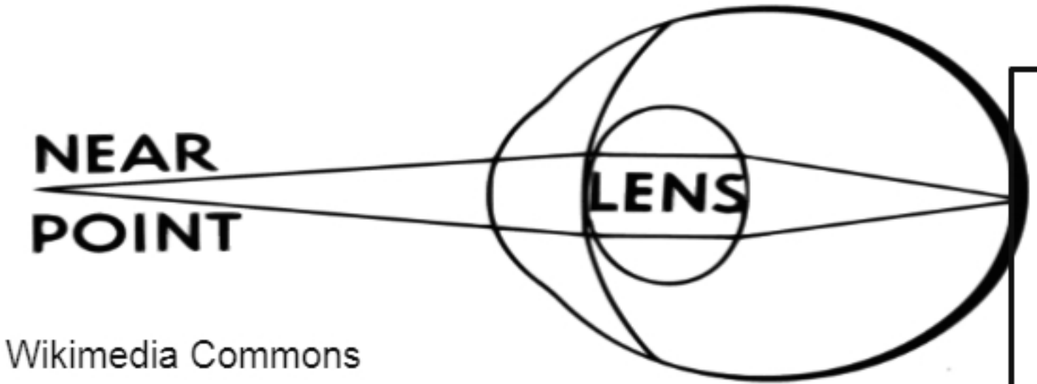
ACCOMMODATION



For distant vision, ciliary muscle relax making the suspensory ligaments tensed which inturn make the lens thin so that the image is focussed on the retina.



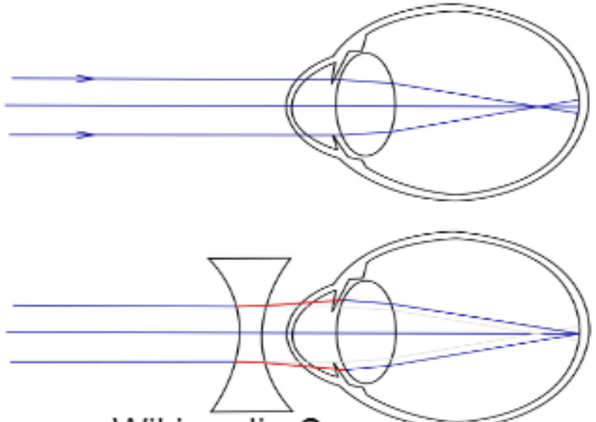
For near vision, ciliary muscle contract

Source: Wikimedia Commons

DEFECTS OF VISION

MYOPIA

- Short sightedness
- The image falls in front of the retina of the eye.
- Eye ball gets elongated
- corrected by concave lens



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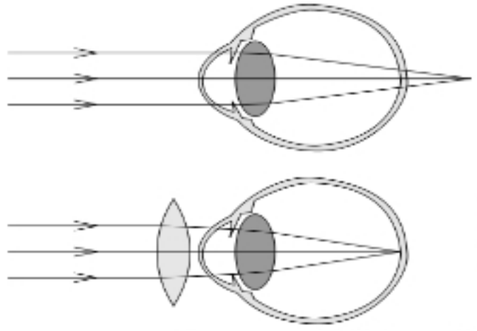
HYPEROPIA

- Long sightedness
- The image falls behind the retina of the eye.
- Eye balls gets shortened
- corrected by convex lens



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NEW EYE TECHNOLOGIES

Contact Lenses

- Lenses are placed on the surface of the eye.
- Includes soft, silk and disposable lenses
- Can be used by any person at any age

Laser Surgery

- Laser is used to change the thickness or the curve of the cornea so that defects of vision can be corrected.
- Can be done on adults after the growing age.

Replacement Lens

- It involves either replacing the faulty lens or inserting the correct one with the faulty one.
- Include damage risk to the eye.

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NEXT STEP

CHECK SPECIFICATION

EXAM QUESTIONS ON THIS TOPIC

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