

MINISTRY OF EDUCATION
SECONDARY ENGAGEMENT PROGRAMME
GRADE 8
INTEGRATED SCIENCE

Week 9

Lesson 1

Topic: Sense Organs

Sub-topic: The Eye

Objectives: Given a picture of the eye, students will:

- correctly relate the structure of the eye to its functions.
- label the parts of the eye-getting at least four (4) parts correct.
- describe how images are formed in the eye correctly.
- explain correctly how the eye is similar to a camera.

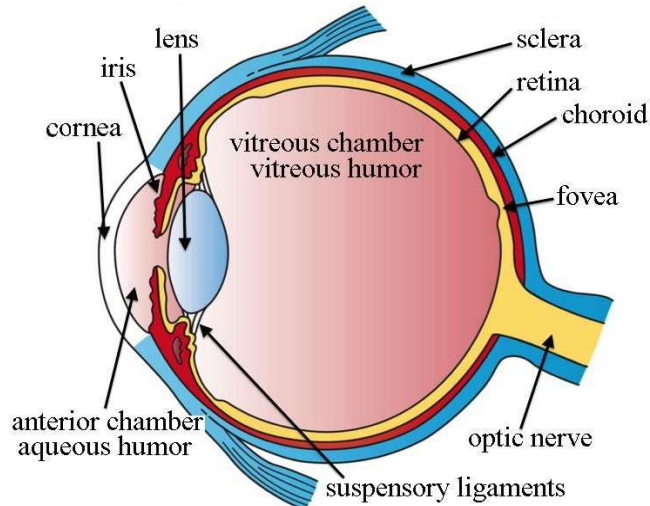
Content

The eye.

The eye is the sense organ that we use for seeing.

Our eyes are the windows through which we can look at the world outside of ourselves. They are the most sensitive instruments that the body has to find out about the environment and we must take the best care of our eyes to keep them working well for us.

Structure of the Eye



Parts of the Eye and their Function

Structure	Function(s)
Sclera	tough outer layer of the eye which covers and protects eyeball.
Choroid	prevents internal reflection of light and nourishes retina.
Retina	contains rods and cones which convert light into nerve impulses.
Ciliary Body	a ring of muscle controlling the shape and curvature of the lens.
Iris	controls the pupil size thus controls entry of light.
Pupil	a hole in the iris that lets light into the back of the eye.
Lens	accommodation & focusing of light onto the retina.
Cornea	bends incoming light focusing it on the retina.
Fovea	a tiny area of densely packed cones for detailed and coloured vision.
Blind Spot	exit point of the optic nerve cutting through the retina so no rods or cones
Optic Nerve	carries the impulses from the rods and cones to the visual center of the brain.

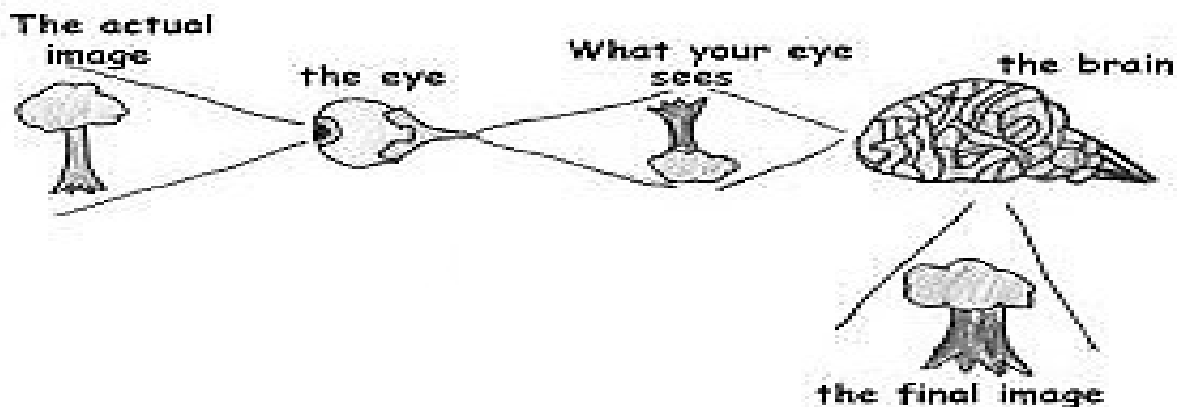
How the eye works/ how do we see?

The eye captures and focuses light like a camera. Here is a step-by-step explanation of how the eye works to provide you with a vision:

1. Light enters the eye through the cornea (the clear, dome-shaped surface that covers the front of the eye).
2. From the cornea, the light passes through the pupil. The amount of light passing through is regulated by the iris or the colored part of your eye.
3. From there, the light then hits the lens, the transparent structure inside the eye, which focuses light rays onto the retina.

4. Finally, it reaches the retina, the light-sensitive nerve layer that lines the back of the eye, where the image appears inverted.
5. The optic nerve carries signals of light, dark, and colors to the area of the brain (the visual cortex), which assembles the signals into images (our vision).

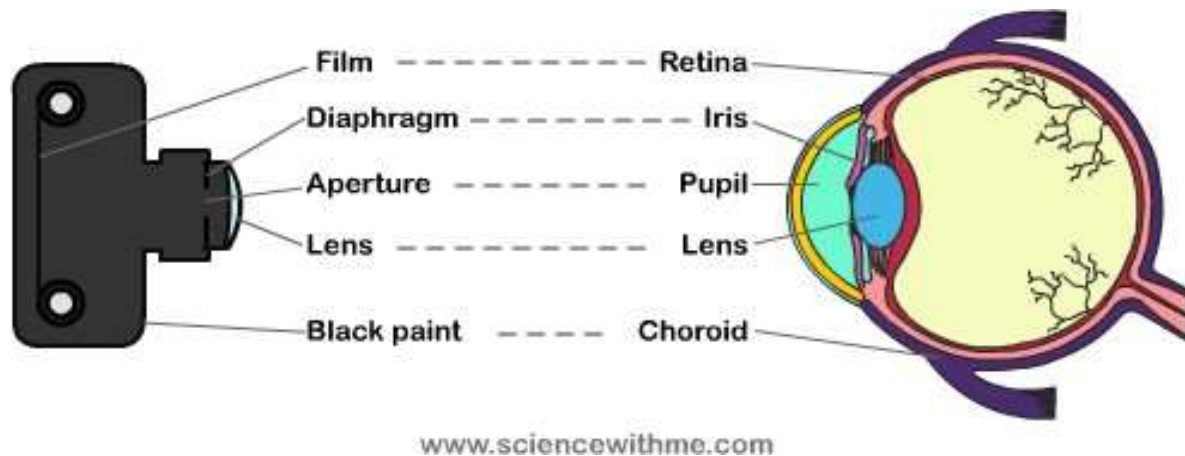
With normal vision, the cornea and the lens focus light directly onto the retina. Light rays entering the eye are focused sharply on the retina and the image you see is clear.



HOW IS OUR EYE SIMILAR TO A CAMERA?

The eye can be compared to a camera. The cornea is the transparent, curved front layer of the eye. The pupil, behind the cornea, is a hole in the coloured membrane called the iris. Tiny muscles in the iris change the size of the pupil – like the aperture of a camera – to control the amount of light getting into the eye.

A camera also focuses light through a lens and onto a receptive surface. However, a camera focuses it onto a sensor, or film if you're using an older camera. And like your eye, a camera can also adjust to let different amounts of light in. In your eye, this is done with the iris; in a camera, the aperture.



HOMEWORK

1. Draw and label at least four parts of the eye.
2. Describe how images are formed in the eye.
3. Before an image is formed in the eye what must be present?
4. Name two (2) diseases that can affect your eye. And state how they can be treated or corrected.

References

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