

## 6.1 Human Vision

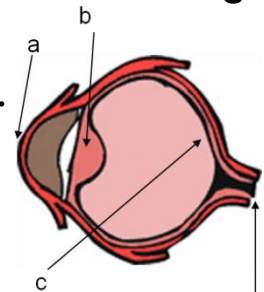
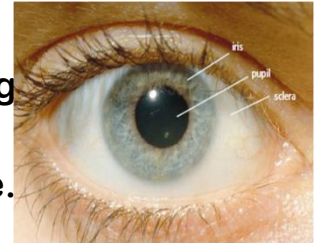
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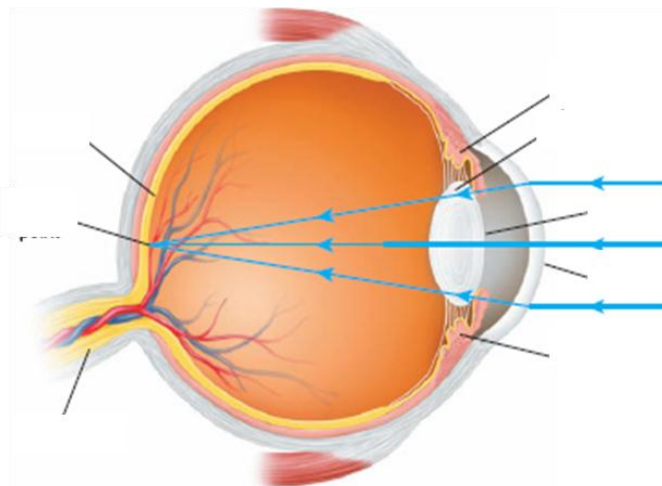
### Parts of the Eye

- The \_\_\_\_\_ is the dark transparent region in the centre of the eye where \_\_\_\_\_.
- The \_\_\_\_\_ is the coloured circle of \_\_\_\_\_ surrounding the pupil.
  - ◆ The iris controls the amount of \_\_\_\_\_ entering the eye.
- The \_\_\_\_\_ is the \_\_\_\_\_ part of the eye surrounding the iris.
- The cornea is the \_\_\_\_\_ covering the iris and the pupil.
- Behind the pupil is a flexible \_\_\_\_\_ lens.
- The lens focuses light onto the \_\_\_\_\_ located in back of the eye.
  - ◆ The retina is covered with light sensitive \_\_\_\_\_ that convert light energy into \_\_\_\_\_ energy.
- Electrical signals are sent to the brain by the \_\_\_\_\_.



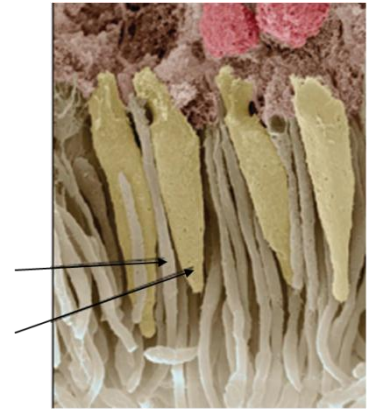
### The Cornea-Lens-Retina System

- Light rays first entering the eye are \_\_\_\_\_ by the cornea so that they \_\_\_\_\_ toward the retina.
- Light then passes through the \_\_\_\_\_ which “\_\_\_\_\_” the focus.
- The image that forms on the retina is \_\_\_\_\_.
- The area where the optic nerve enters the retina is called the \_\_\_\_\_.
  - ◆ This area has no \_\_\_\_\_ cells.



## Black-and-White Vision and Colour Vision

- The retina contains two types of light-sensitive cells called \_\_\_\_\_ and \_\_\_\_\_.
- Rod cells are cylinder-shaped cells that allow us to see images in \_\_\_\_\_ and \_\_\_\_\_ when the light is \_\_\_\_\_.
- Cone cells are cone-shaped cells that allow us to see \_\_\_\_\_ in \_\_\_\_\_.

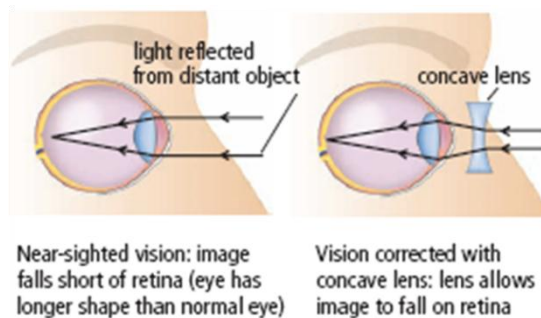


Electron micrograph of the retina.

## Correcting Focus Problems

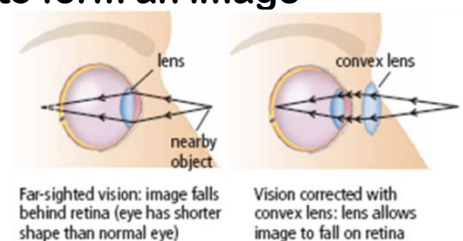
### Near-sighted vision

- Can not clearly focus on \_\_\_\_\_ objects.
- Occurs because the lens converges the light rays to form an image \_\_\_\_\_ the retina.
- A \_\_\_\_\_ lens is used to correct near-sighted vision.



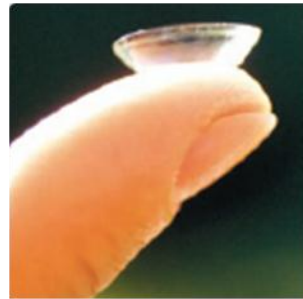
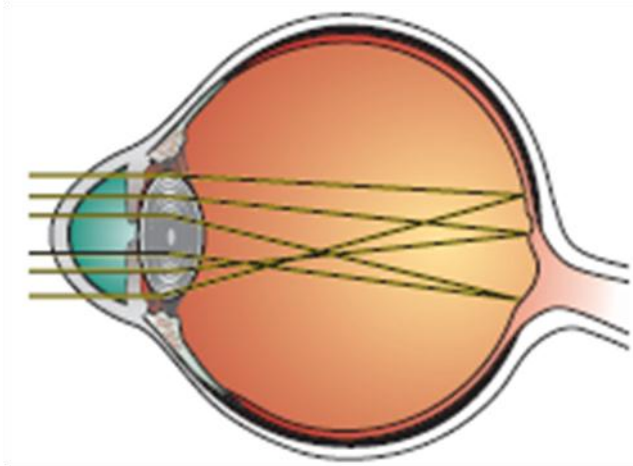
### Far-sighted vision

- Can not clearly focus on \_\_\_\_\_ objects.
- Occurs because the lens converges the light rays to form an image \_\_\_\_\_ the retina.
- A \_\_\_\_\_ lens is used to correct far-sighted vision.



## Astigmatism

- Blurred vision due to an irregular shaped \_\_\_\_\_.
- Causes the image to focus on more than \_\_\_\_\_ on the retina.



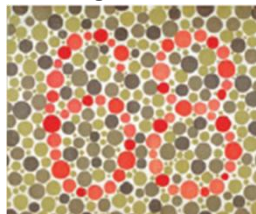
- Corrected by using eyeglasses, contact lenses, or \_\_\_\_\_.

## Blindness

- Blindness is any \_\_\_\_\_ that keeps people from carrying out important life functions.
- Most people who are legally blind can perceive \_\_\_\_\_ light.
  - ◆ May be able to see a tiny part of the middle of the whole scene (\_\_\_\_\_).
  - ◆ May be able to only see the \_\_\_\_\_ but not directly ahead.
  - ◆ May be able to see \_\_\_\_\_ and \_\_\_\_\_ but not clearly, even with visual aids.

## Other Types of Blindness

- Snow blindness is a temporary blindness caused by overexposure to the glare of \_\_\_\_\_.
- Night blindness is a condition in which it is difficult to see in \_\_\_\_\_.
- \_\_\_\_\_ blindness is the ability to see only in shades of \_\_\_\_\_.
- Colour vision deficiency is the inability to distinguish certain \_\_\_\_\_.
  - ◆ The most common is the inability to distinguish between \_\_\_\_\_.



A test for red-green colour vision deficiency.