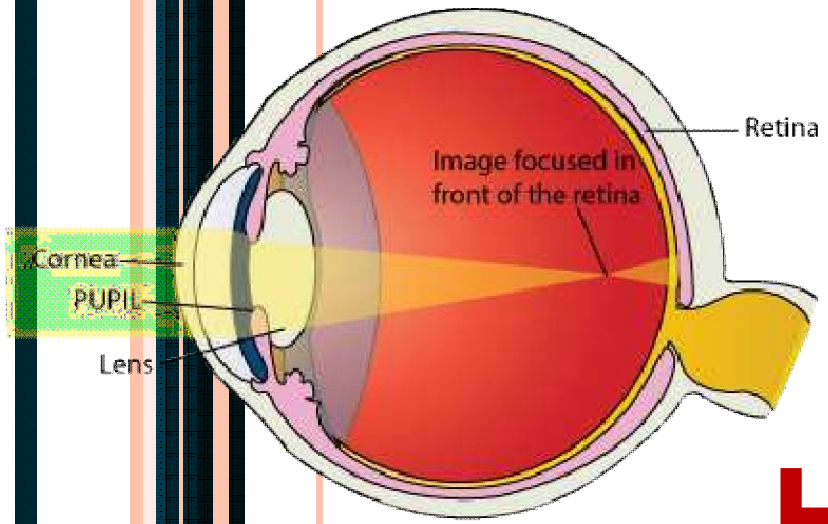
Class - X



PHYSICS

Human Eye and Colourful world

पुना International School

Shree Swaminarayan Gurukul, Zundal

EYES- OUR WINDOWS TO THE WORLD!

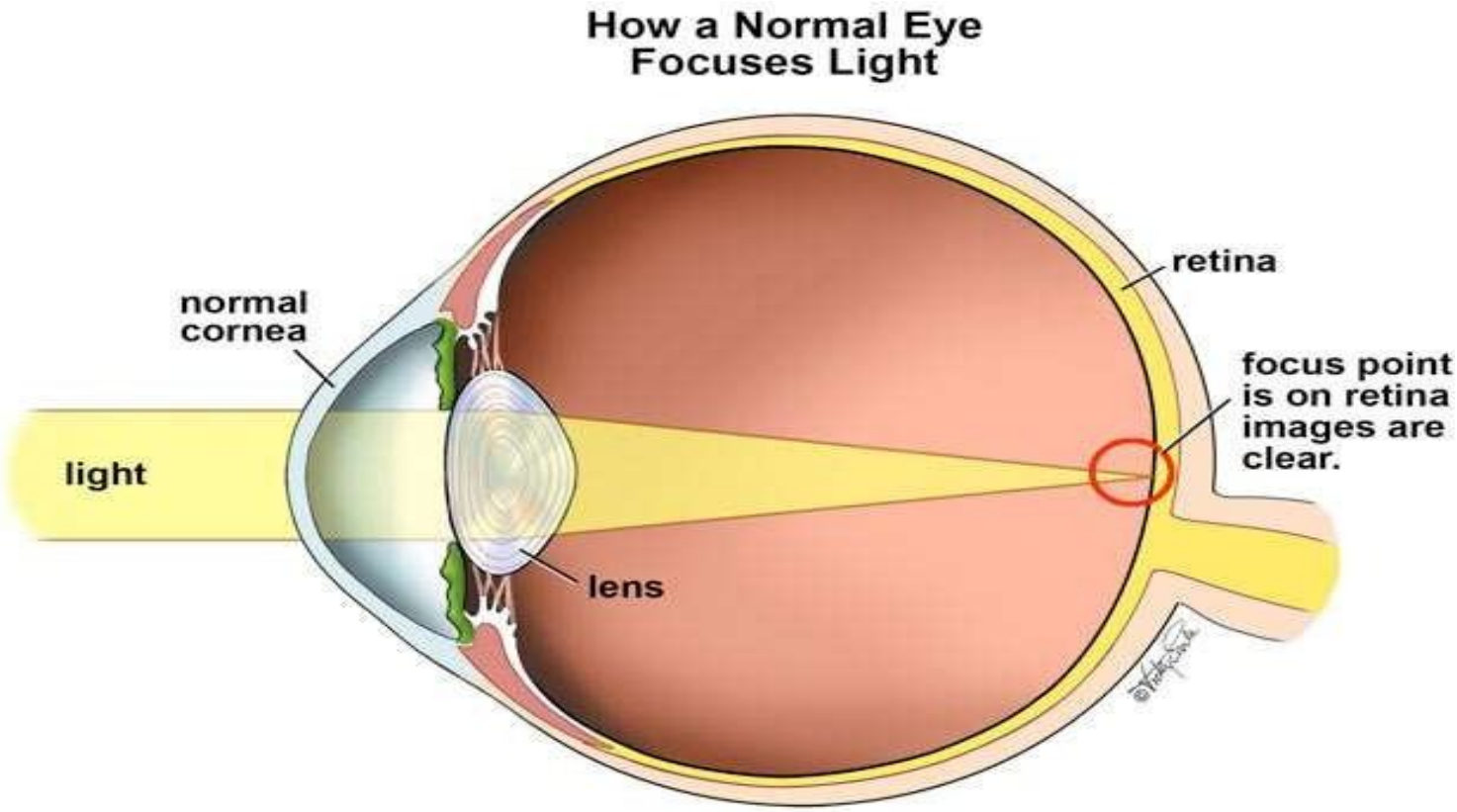
Spectacles ????? WHY SO ????

DEFECTS OF VISION

- When normal functioning of the eye is affected , it results in defects of vision

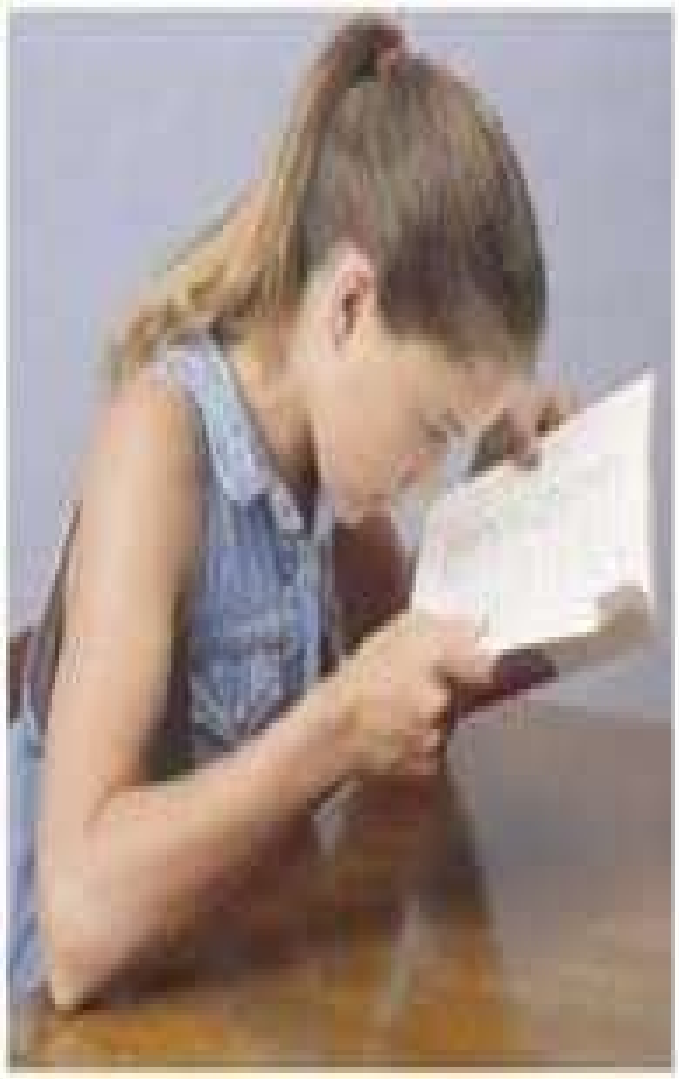
- Mainly 2 types
  - ✓ Myopia (short sightedness)
  - ✓ Hypermetropia (long sightedness)

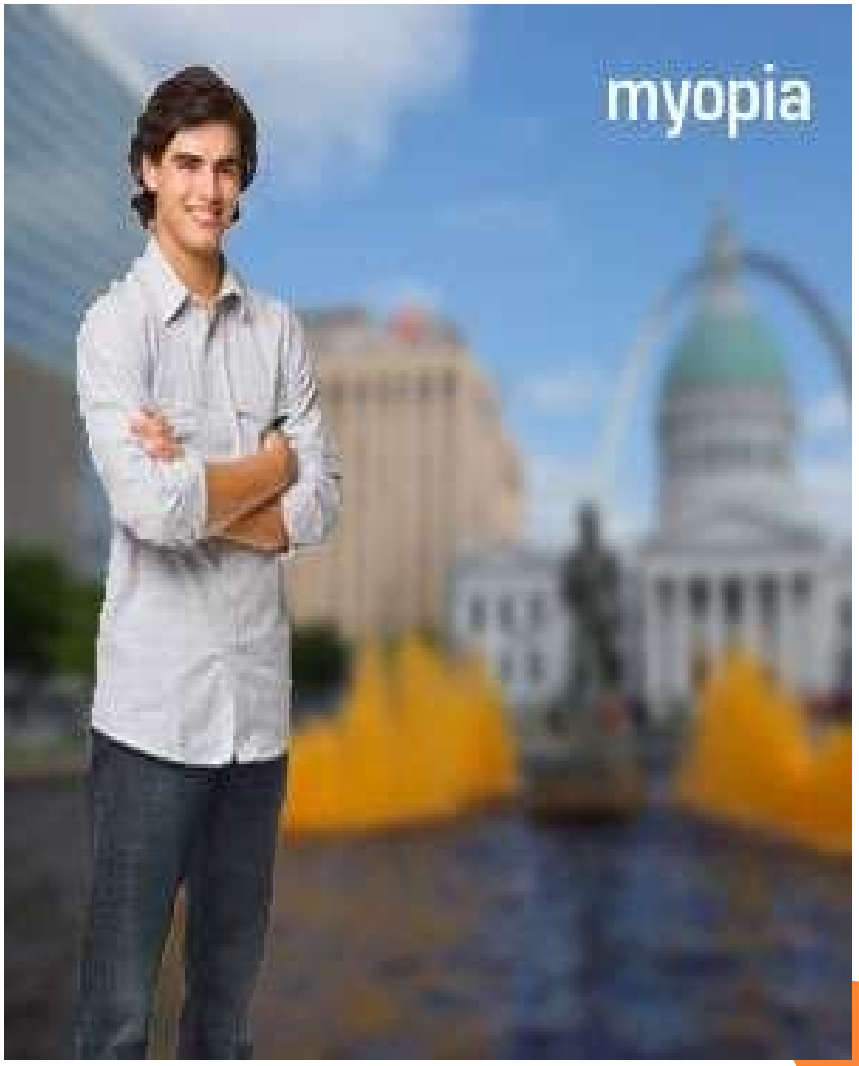
NORMAL EYE



In a normal eye , light passes through the cornea , and the image is focused by the lens on the retina

WHAT IS THE DIFFICULY HERE????????

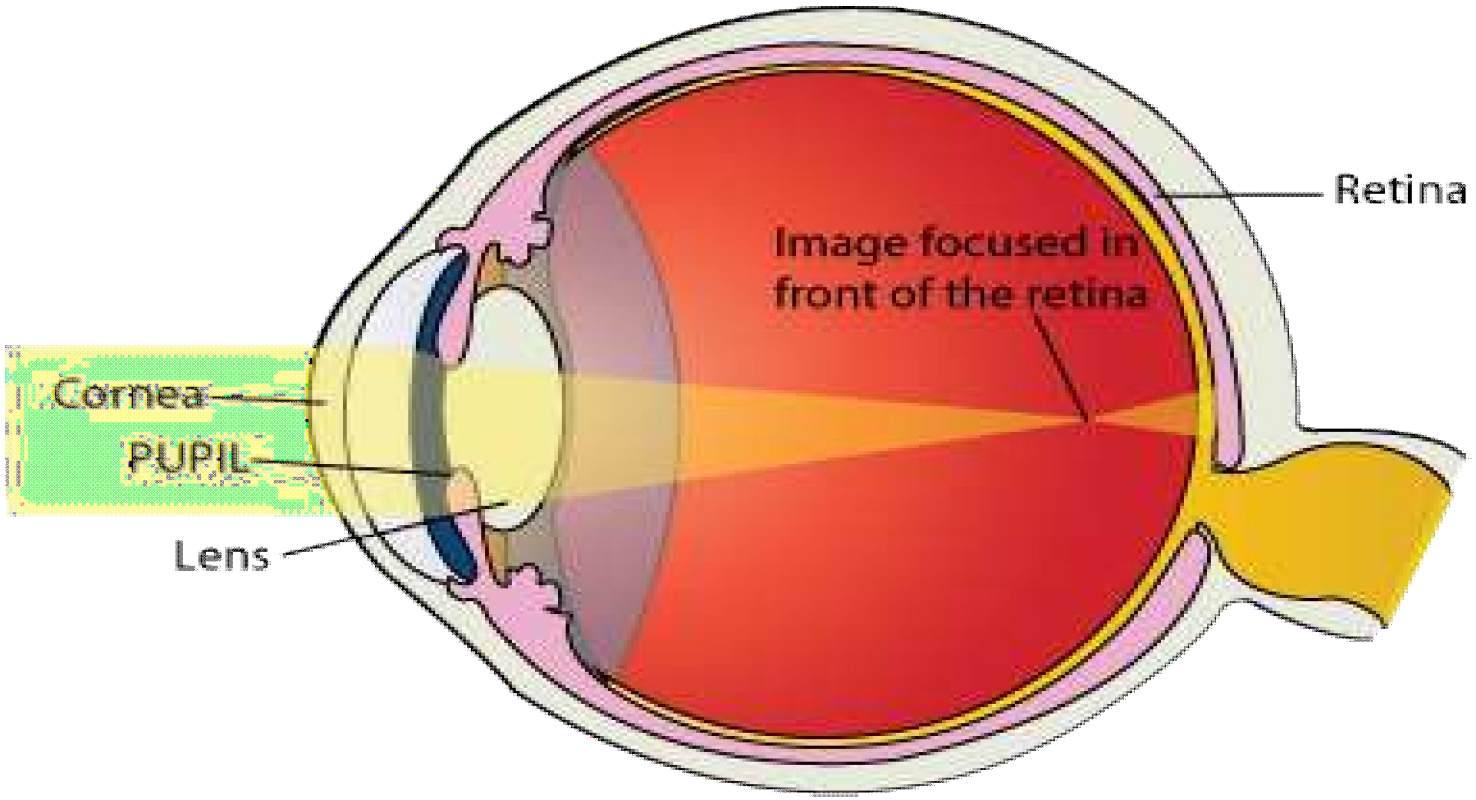




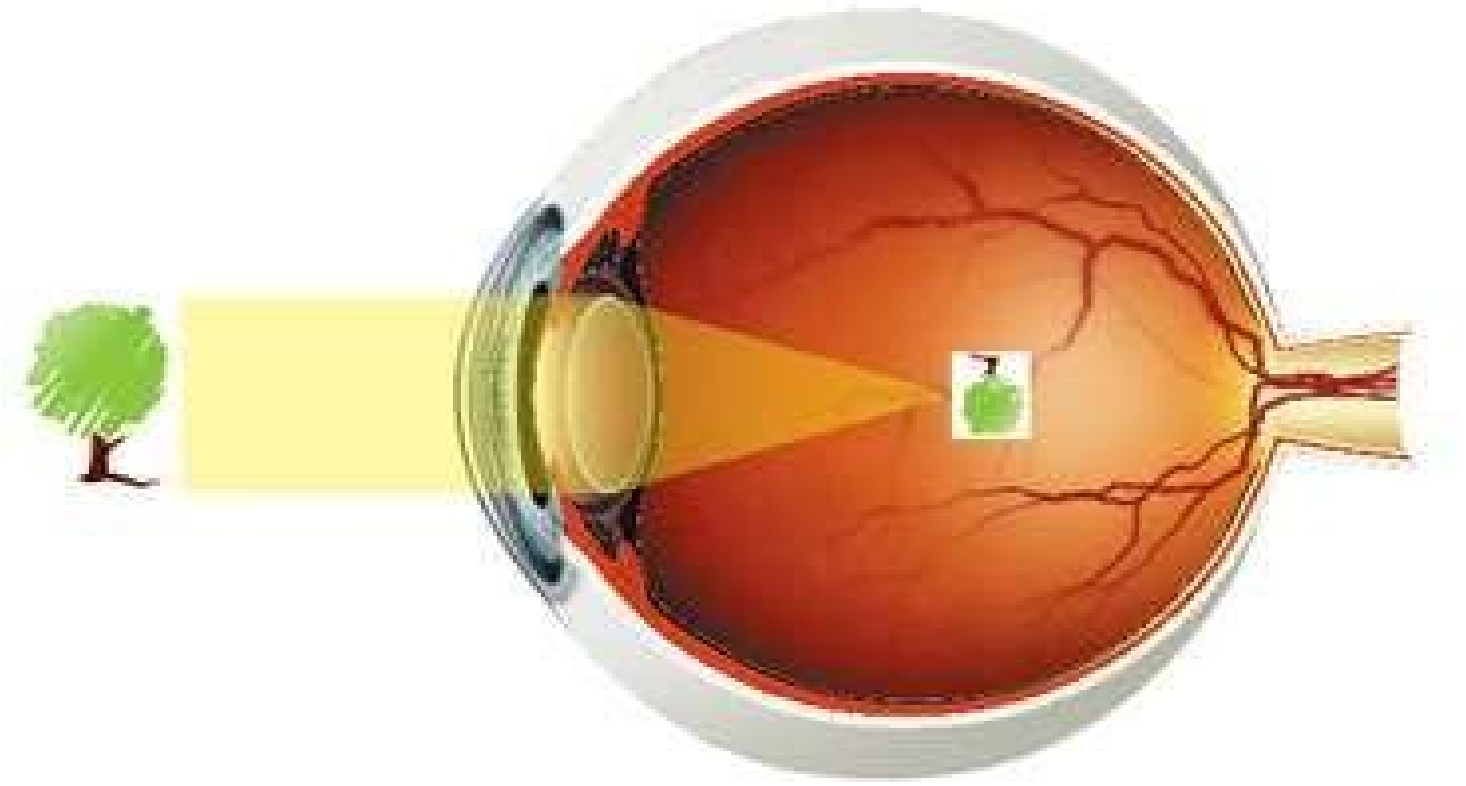
MYOPIA- NEARSIGHTEDNESS

- A person can see nearby objects clearly and distinctly but cannot see far away objects clearly.
- In myopic eye ,the image is formed in front of the retina.
- Caused by two reasons:
  - Elongation of the eyeball → so images are focused in front of the retina
  - Decrease in the focal length of eye lens
- Correction: by using a concave lens of appropriate power.

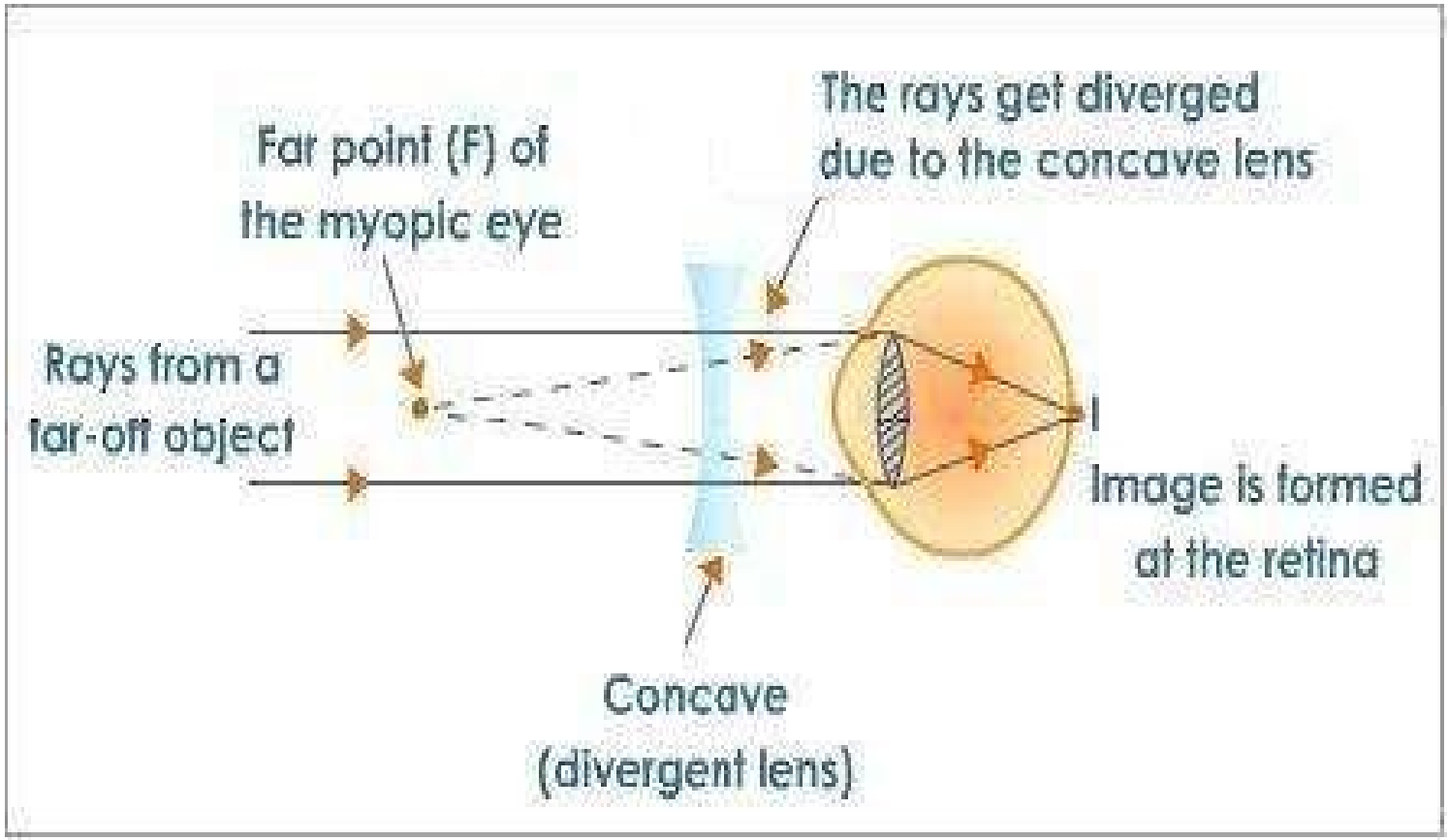
MYOPIC EYE


Retina
Image focused in
front of the retina
Cornea
PUPIL
Lens

MYOPIC EYE-IMAGE FORMATION



MYOPIC EYE – RAY DIAGRAM & CORRECTION USING CONCAVE LENS

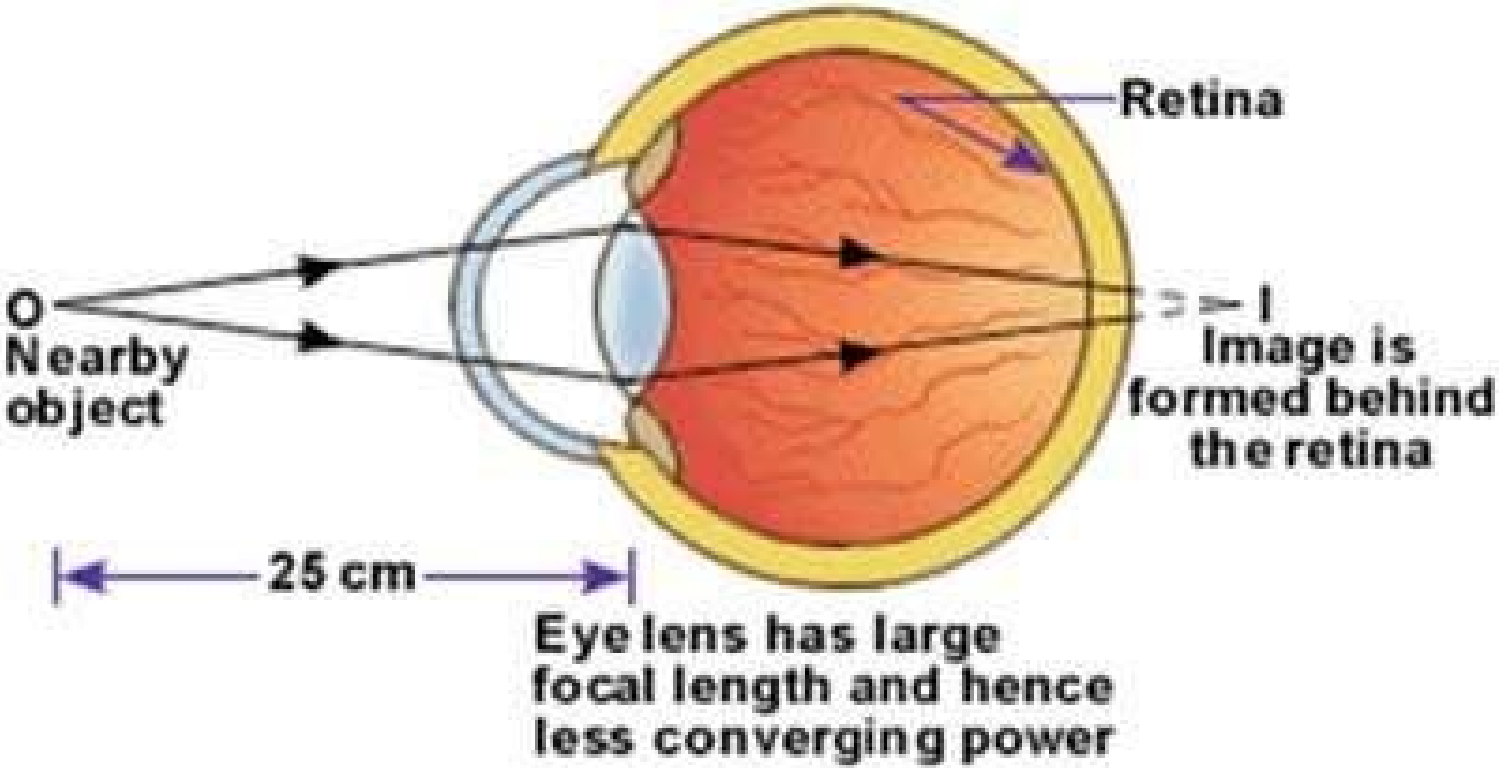


CAN YOU SEE PROPERLY ?????

HYPERMETROPIA – FAR SIGHTEDNESS

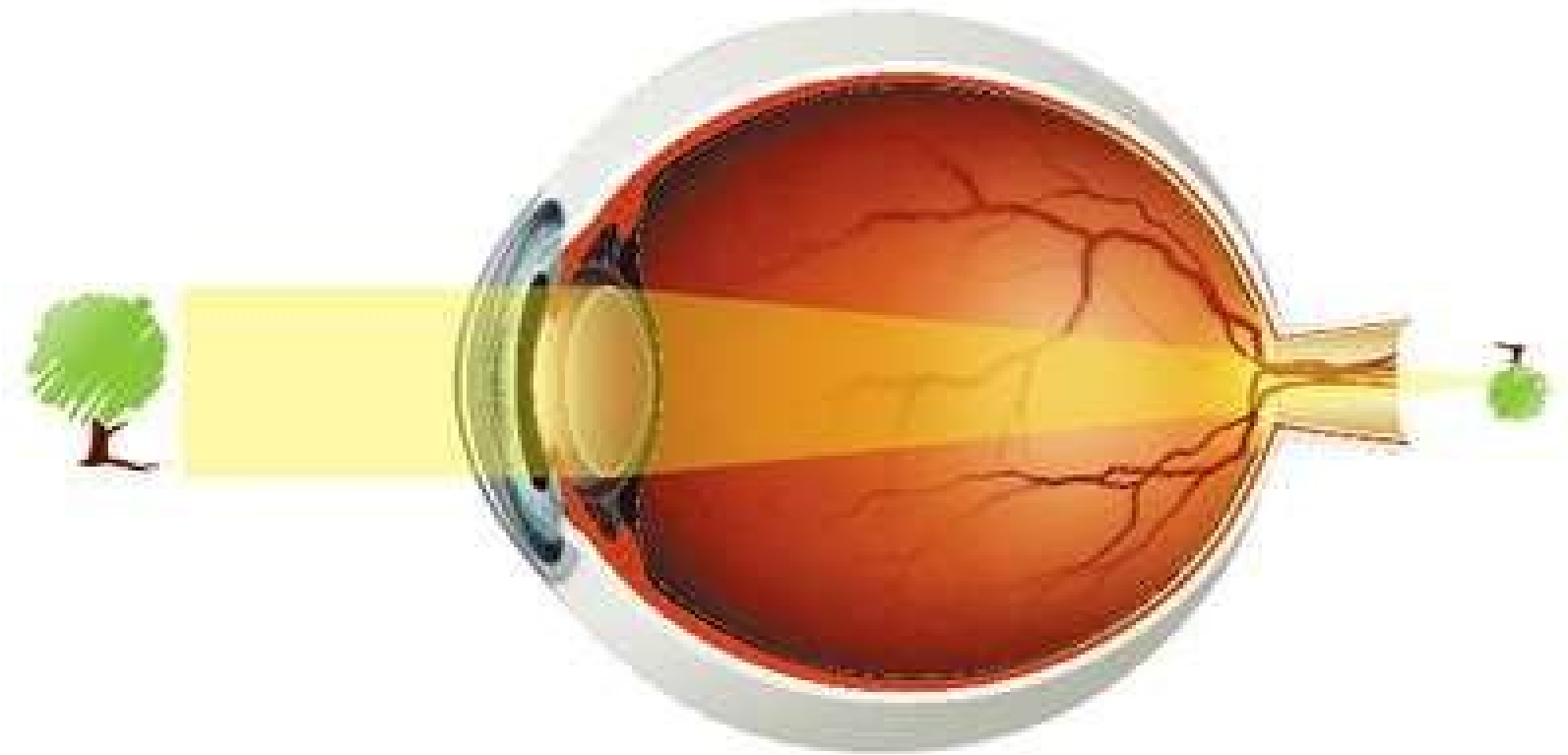
- The person can see distant objects clearly and distinctly but cannot see nearby objects clearly
- The image is focused behind the retina
- Main causes are :
  - **Shortening of the eyeball → So the images are focused behind the retina**
  - **Increase in focal length of the eye lens**
- Correction: by using a convex lens of appropriate power

HYPERMETROPIC EYE

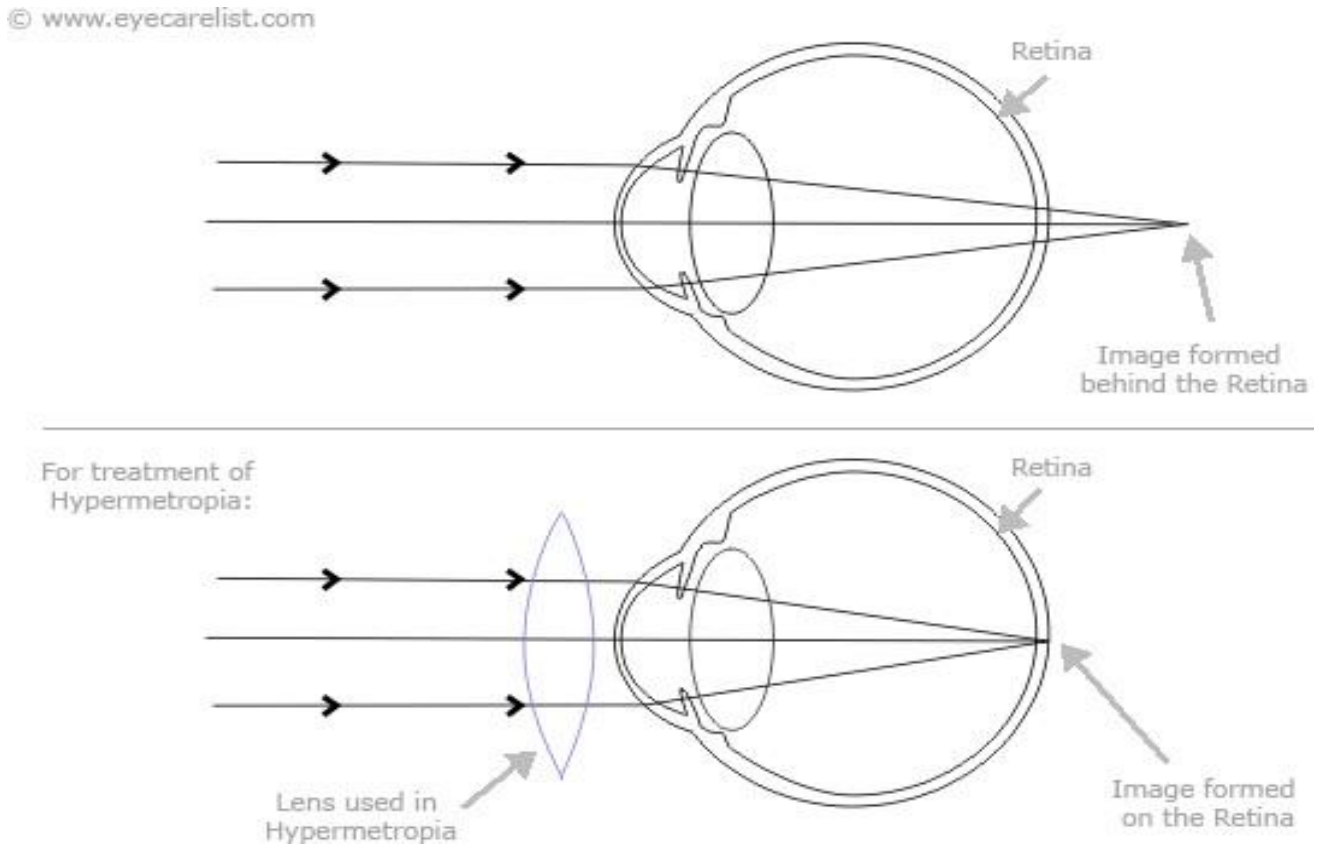


(a) An eye suffering from hypermetropia

HYPERMETROPIC EYE – IMAGE FORMATION



HYPERMETROPIC EYE – RAY DIAGRAM AND CORRECTION USING CONVEX LENS




Thank You