

1 - Imaging - The eye

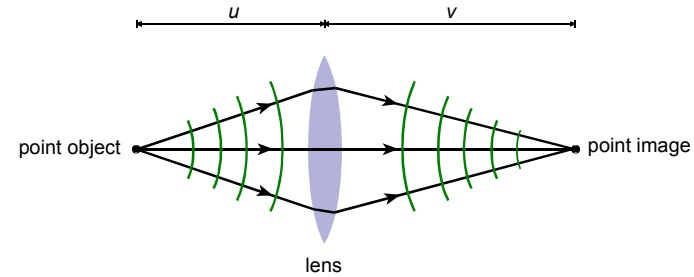
- The eye is like an intelligent video camera, sending out a stream of processed signals. *It detects edges and movement.*
- The **cornea** partly focuses light onto the retina as well as protecting the eye.
- The eye **lens** power is altered by the **ciliary muscles** which alter the thickness of the lens.
- The image is formed on the **retina**.
- The retina consists of two types of cells. **Rods** respond to different intensities and are not colour sensitive. **Cones** are sensitive to red or green or blue light.

Keywords
 Cornea
 Lens
 Ciliary muscle
 Retina
 Rods
 Cones

1.17

1 - Imaging - The Lensmakers equation

- Converging lenses are assigned + values of f.
 Diverging lenses are assigned - values.



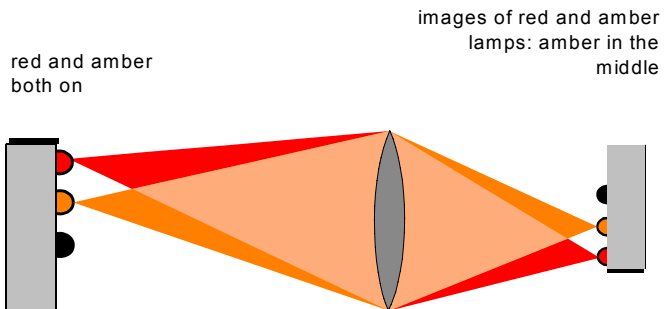
Cartesian convention $\frac{1}{v} = \frac{1}{u} + \frac{1}{f}$ where distances from lens are assigned } - values to left
 + values to right

Keywords
 Image
 Object
 Focal point
 Cartesian convention
 Converging
 Diverging

1.18

1 - Imaging - Pictures and magnifications

- How a lens makes a picture



- Linear magnification, $m = v/u$
- m is just a number with no units.

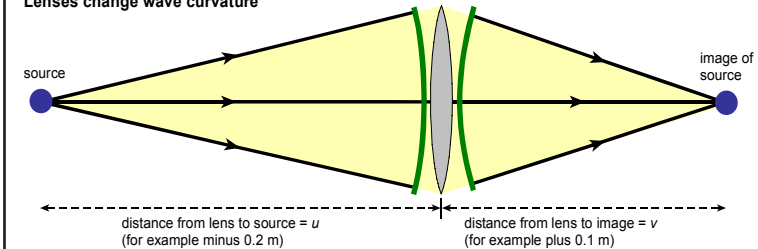
Keywords
 Image
 Real
 Inverted
 Magnified

1.20

1 - Imaging - Converging lens

A converging lens adds curvature - this is the power of the lens.

Lenses change wave curvature



The power of a lens in dioptries = $1/f$ where f is the focal length in metres.

Keywords
 Convex
 Converging
 Curvature
 Power
 Dioptry
 Focal length

1.19