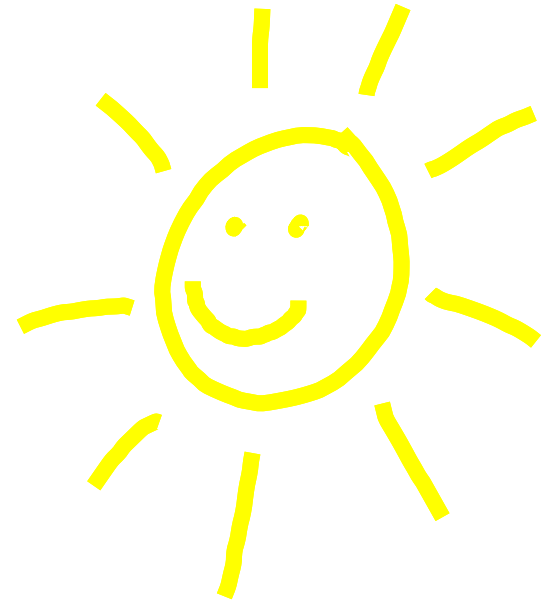


**Light**

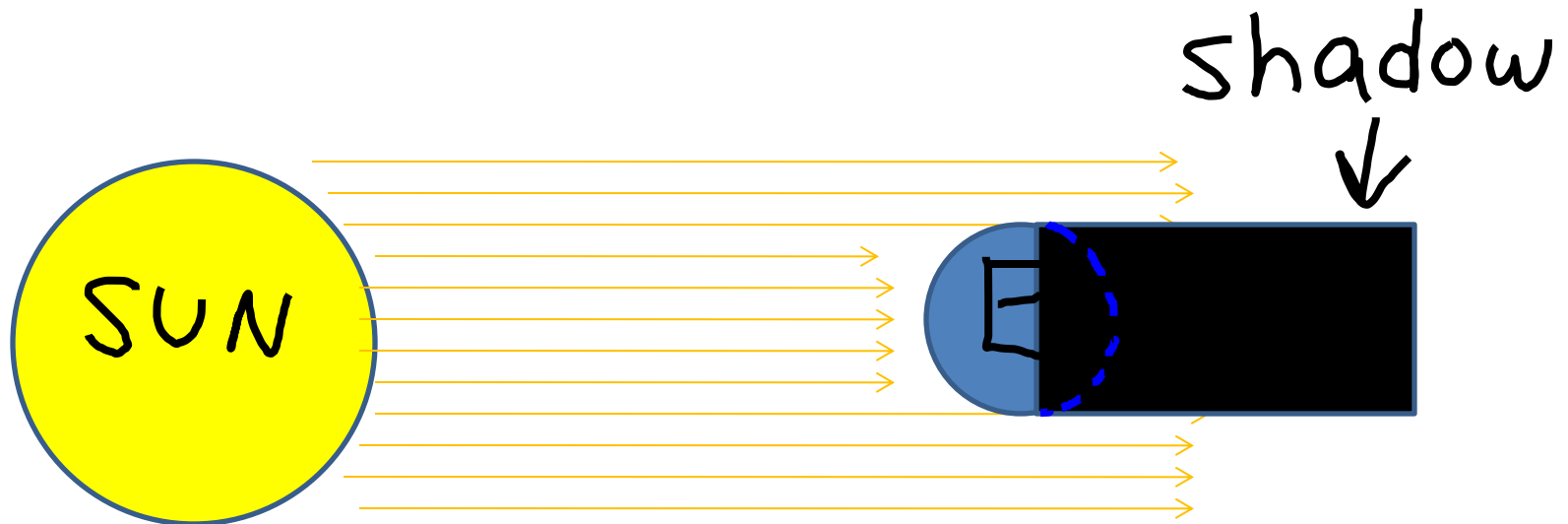


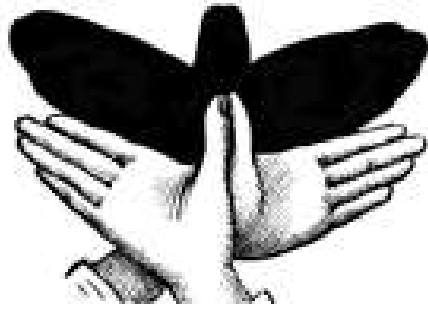
**Mr. Skirbst**



# Ray Model

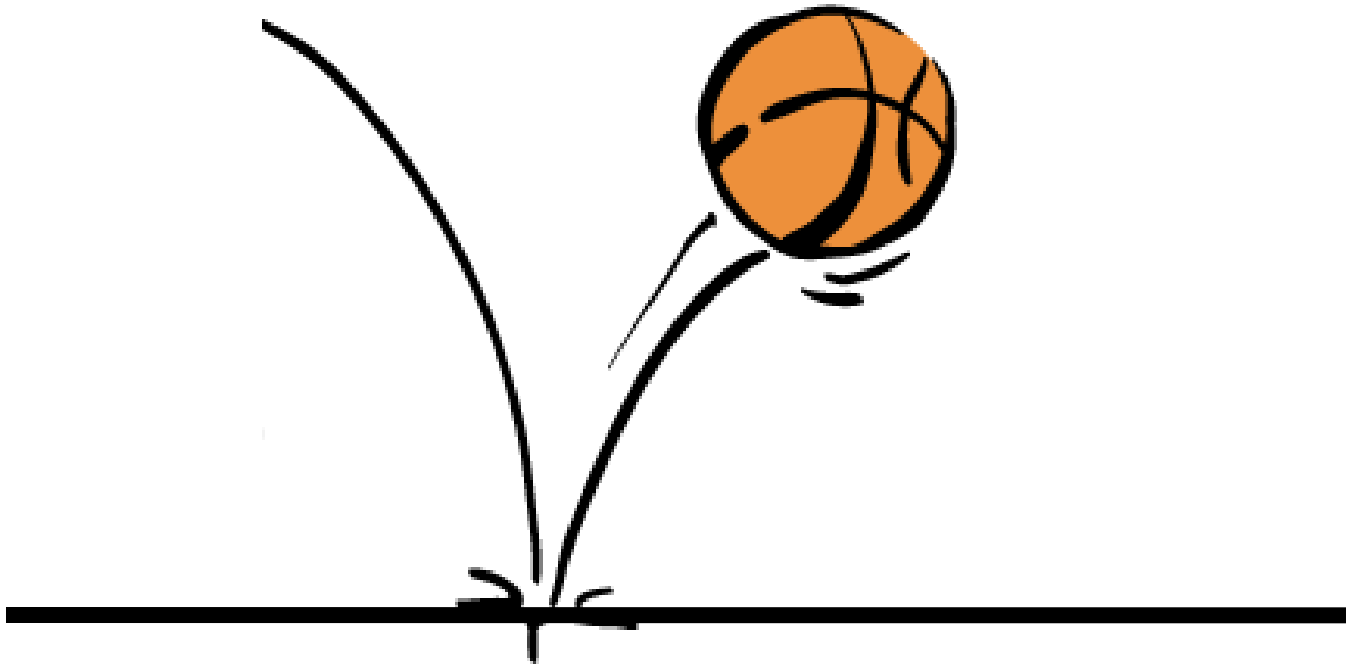
- light travels in straight lines called "rays"





# Reflection

- light “bouncing” off a surface



# 2 Types of Reflection

We do not learn from  
experience... we learn  
from reflecting on  
experience.

- John Dewey

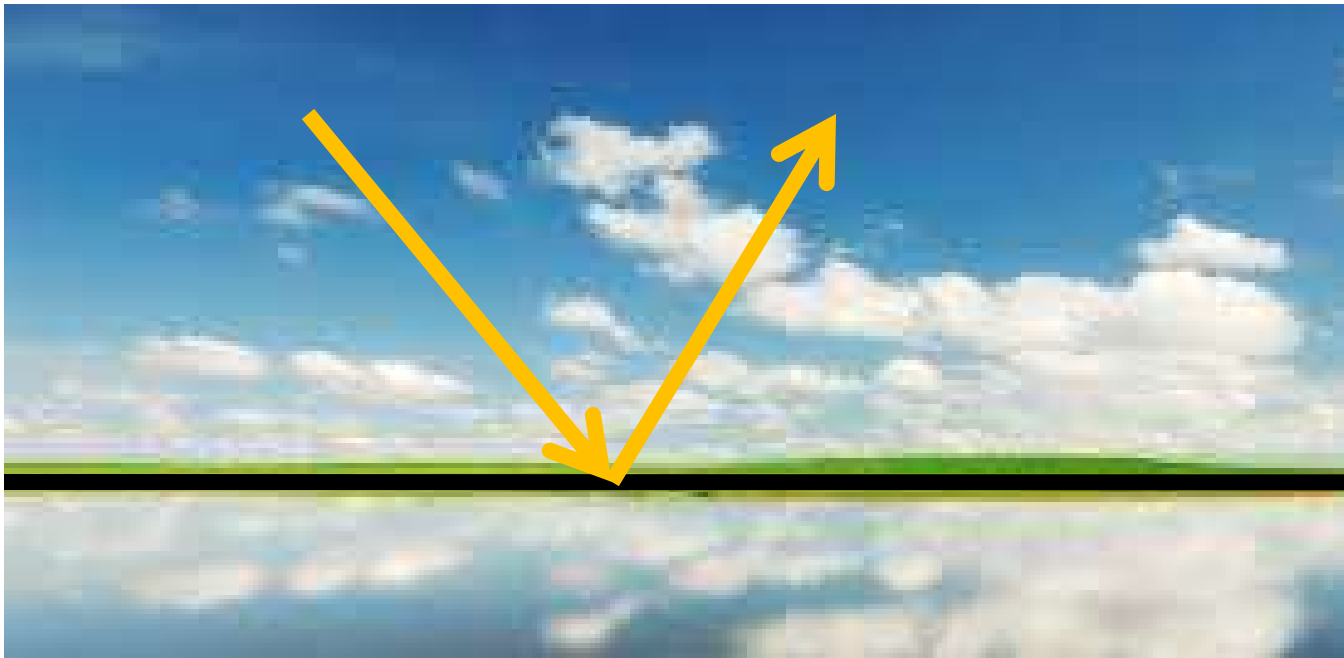
# Regular Reflection

- reflection off a smooth surface (ex. mirror)



# Regular Reflection

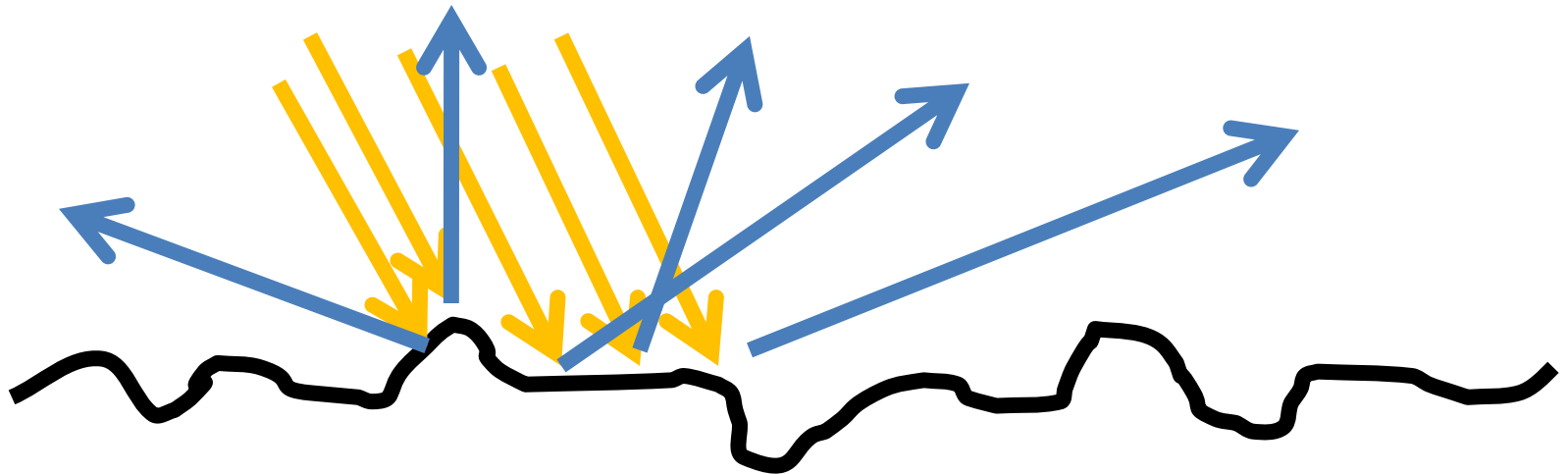
- reflection off a smooth surface (ex. mirror, lake)





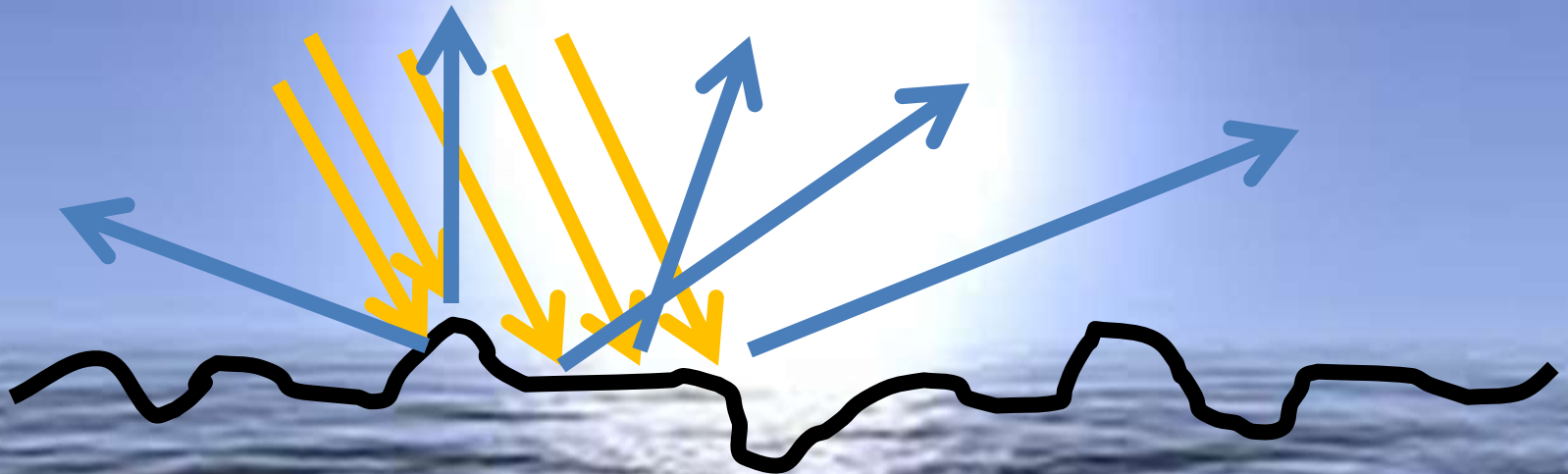
# Diffuse Reflection

- reflection off an irregular surface (ex. foil, waves)



# Diffuse Reflection

- reflection off an irregular surface (i.e. foil)





# Mirror

- smooth surface that reflects light

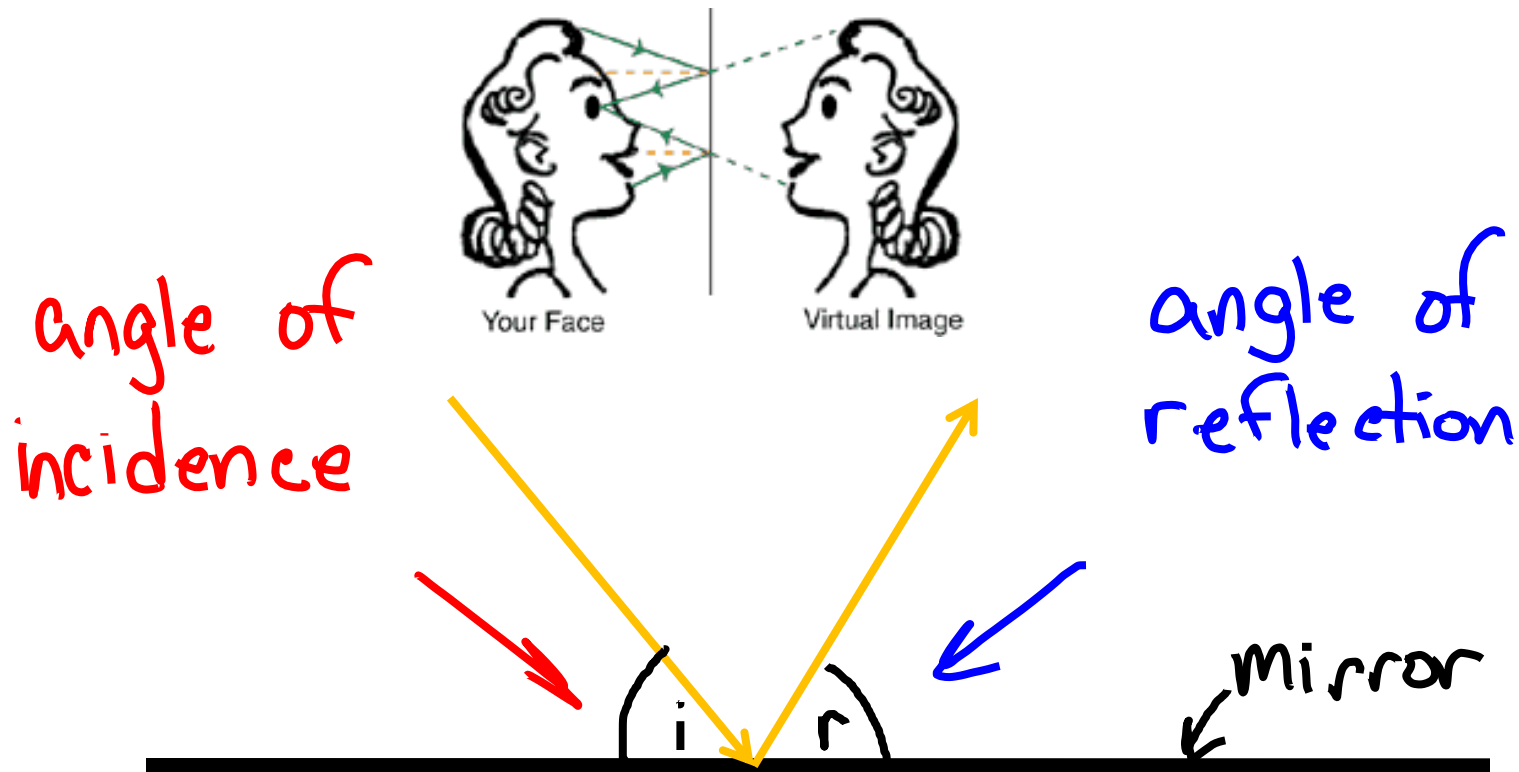


# 3 Types of Mirrors



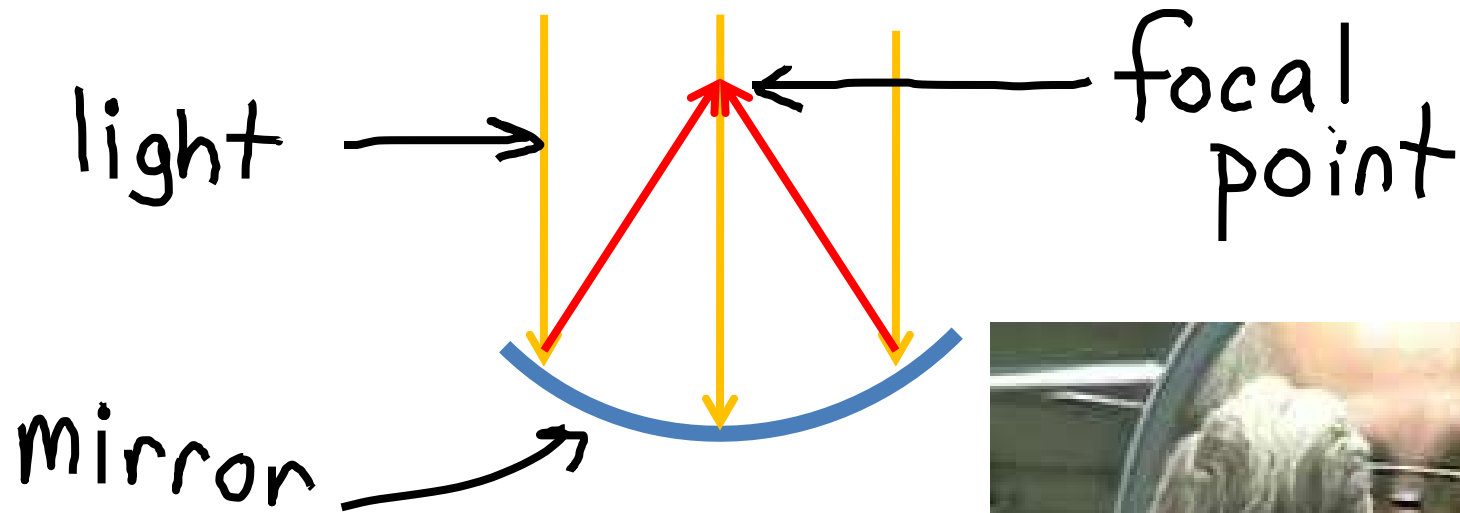
# 1. Plane Mirror

- smooth, flat surface



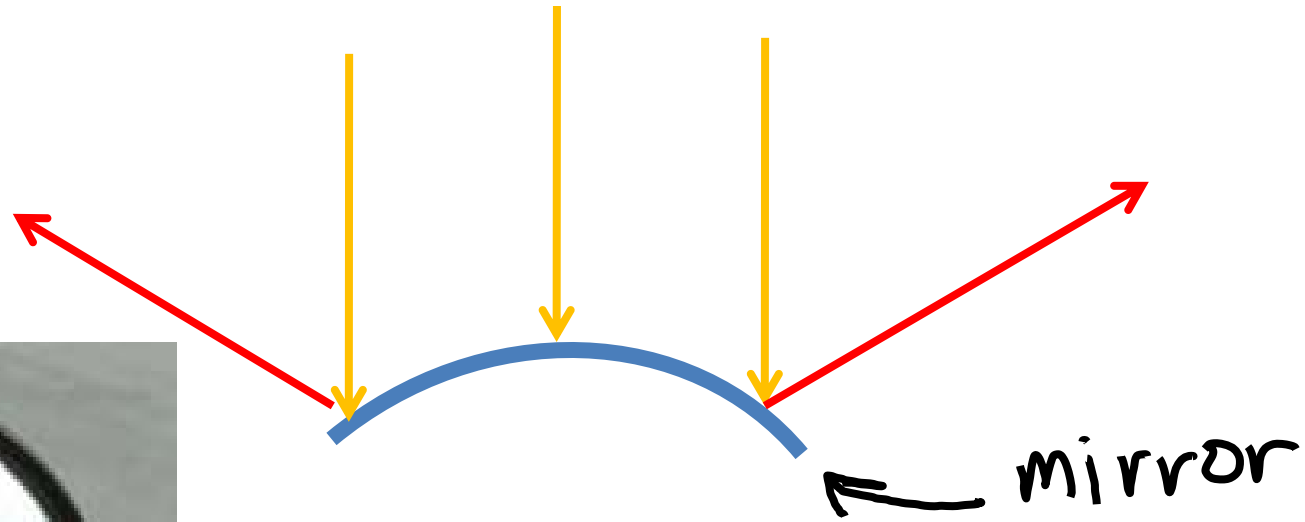
# 2. Concave Mirror

- smooth, curved inward



# 3. Convex Mirror

- smooth, curved outward







# Refraction

- light bends due to change in speed when passing between different types of material



# Refraction

- light bends due to change in speed when passing between different types of material



# Prism

- a device used to refract light into the colors of the rainbow (ROYGBV)



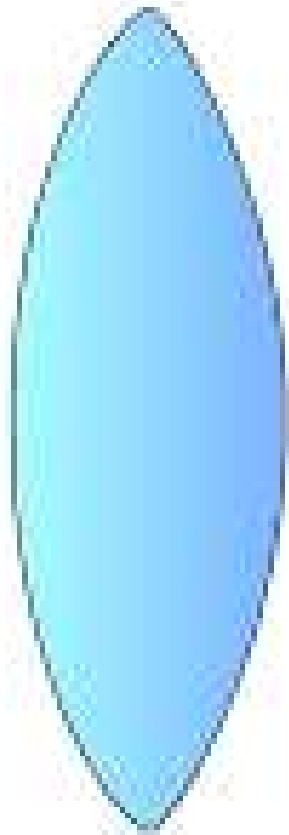
# Lenses

- transparent material that refracts light



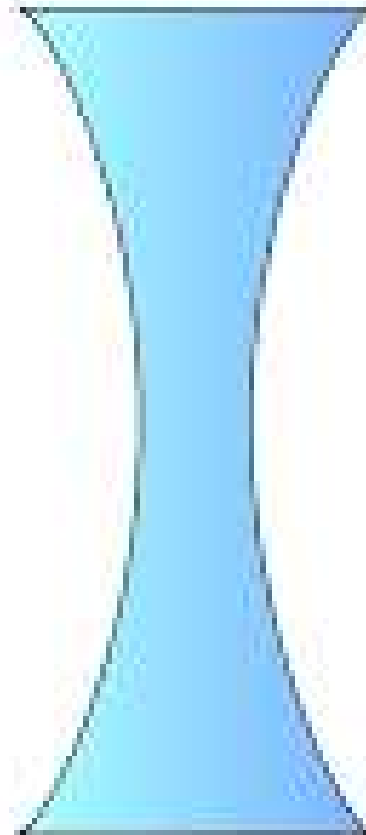
# 2 Types of Lenses

Converging Lens



Biconvex

Diverging Lens



Biconcave

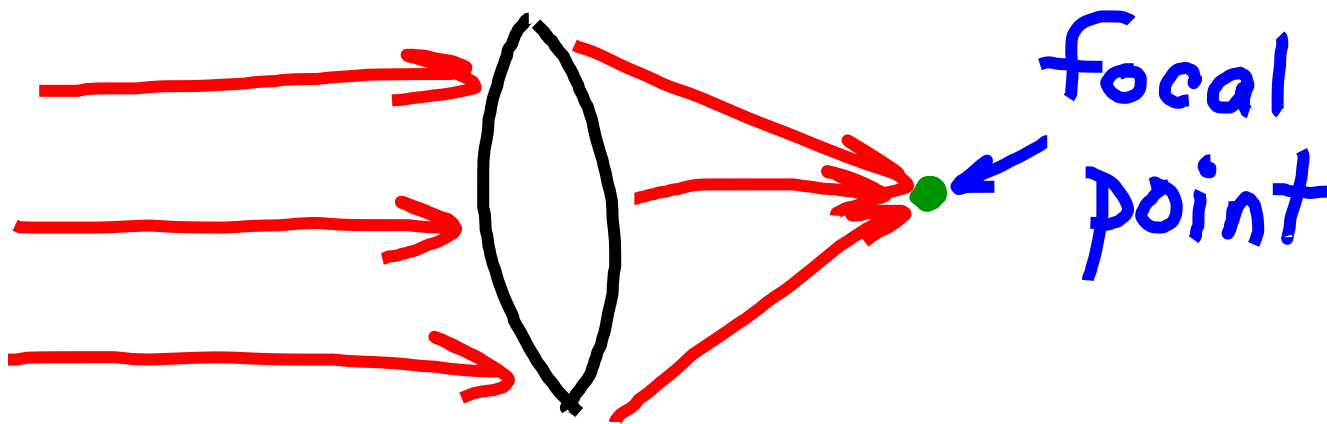
# **1. Convex Lenses**

- thicker in the middle**
- refracts to a point**

# 1. Convex Lenses

- thicker in the middle

- refracts to a point

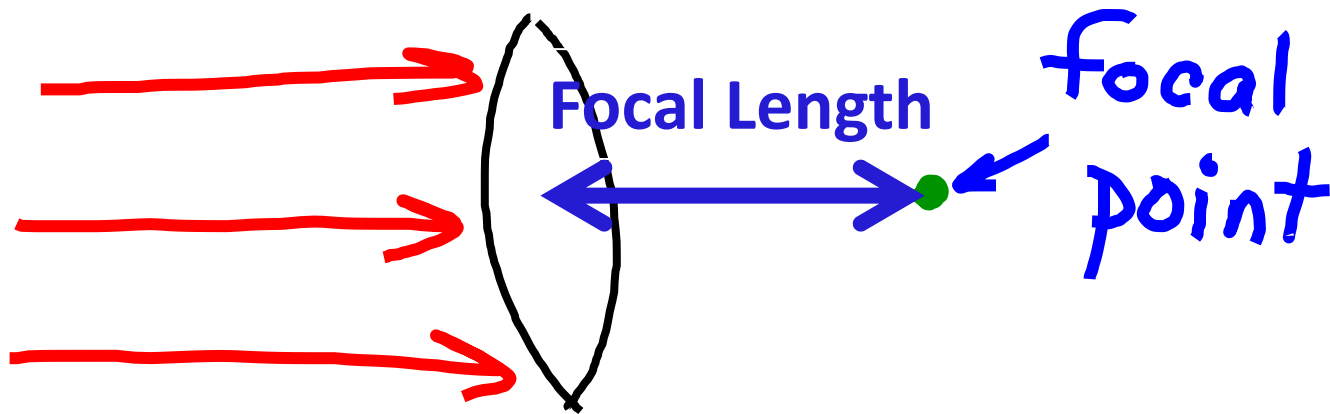




# 1. Convex Lenses

- thicker in the middle

- refracts to a point

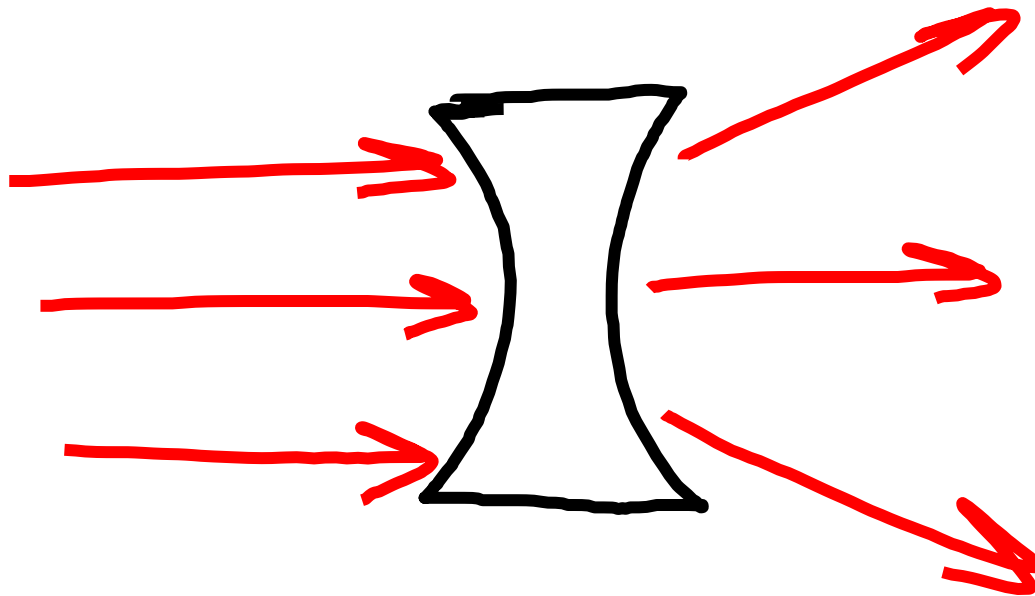


## **2. Concave Lenses**

- thinner in the middle**
- refracts outward**

## 2. Concave Lenses

- thinner in the middle
- refracts outward

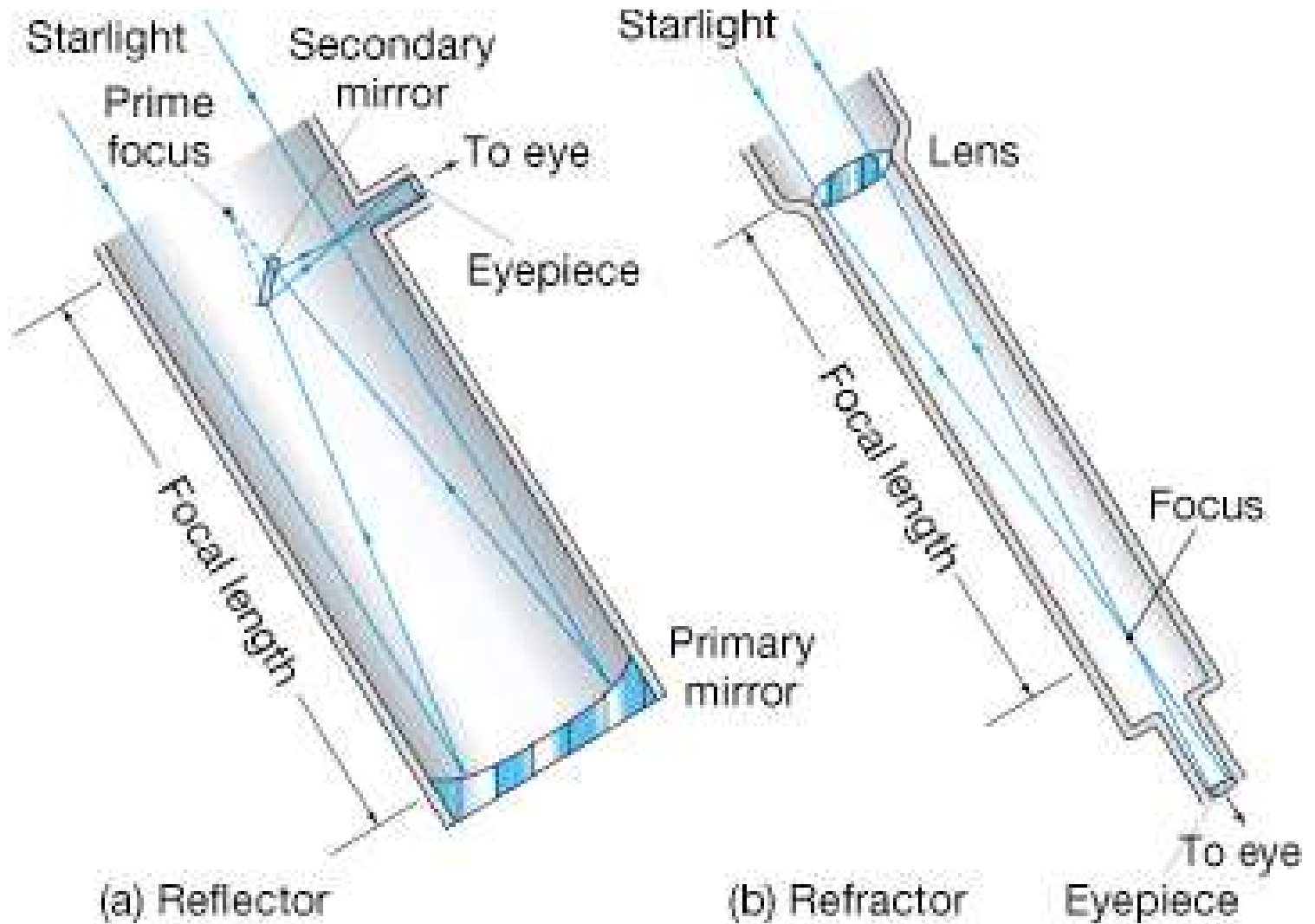


# Telescope

- an instrument used to view objects far away



# 2 Types of Telescopes





# 1. Refracting Telescopes

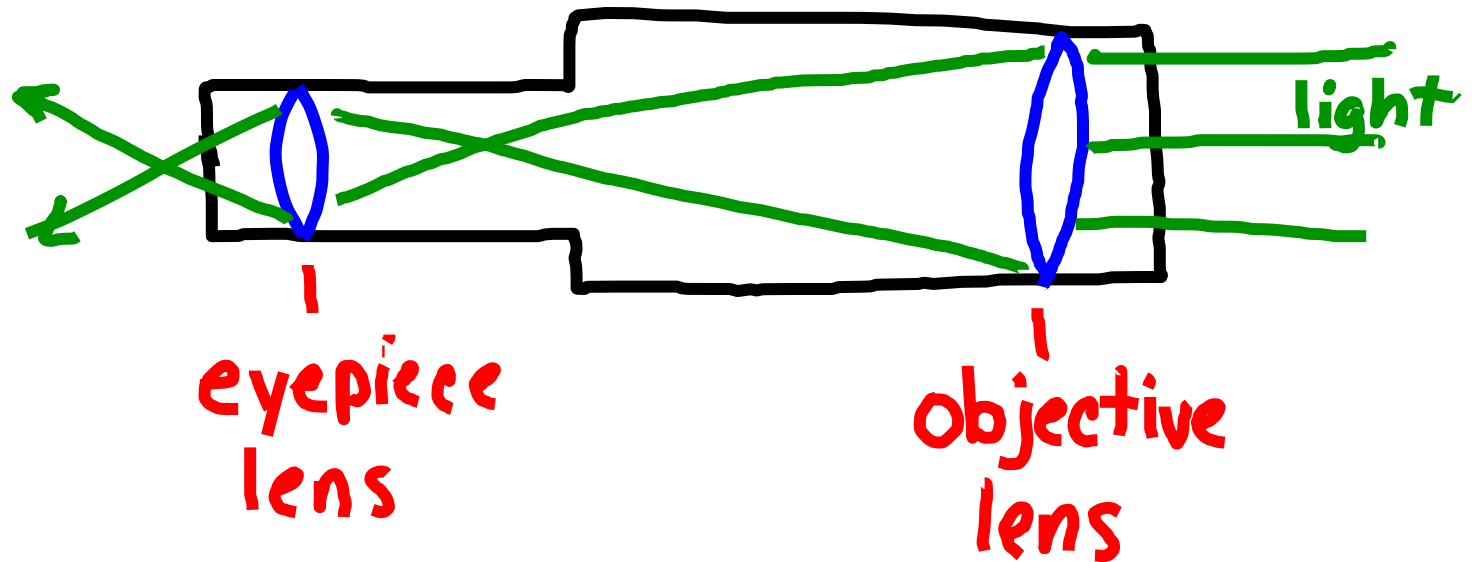
# 1. Refracting Telescopes

- uses lenses to collect light



# 1. Refracting Telescopes

- uses lenses to collect light



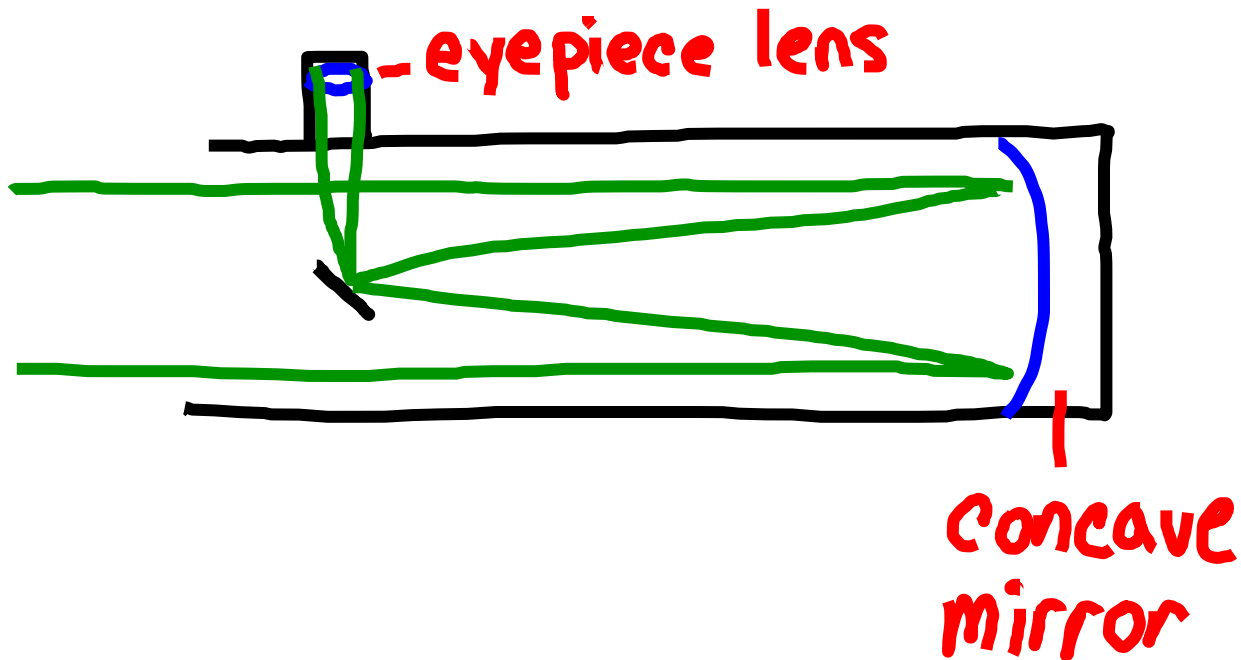
# 2. Reflecting Telescopes

## 2. Reflecting Telescopes

- uses mirrors to collect light

## 2. Reflecting Telescopes

- uses mirrors to collect light



$$\text{magnifying power} = \frac{H_0}{H_e}$$

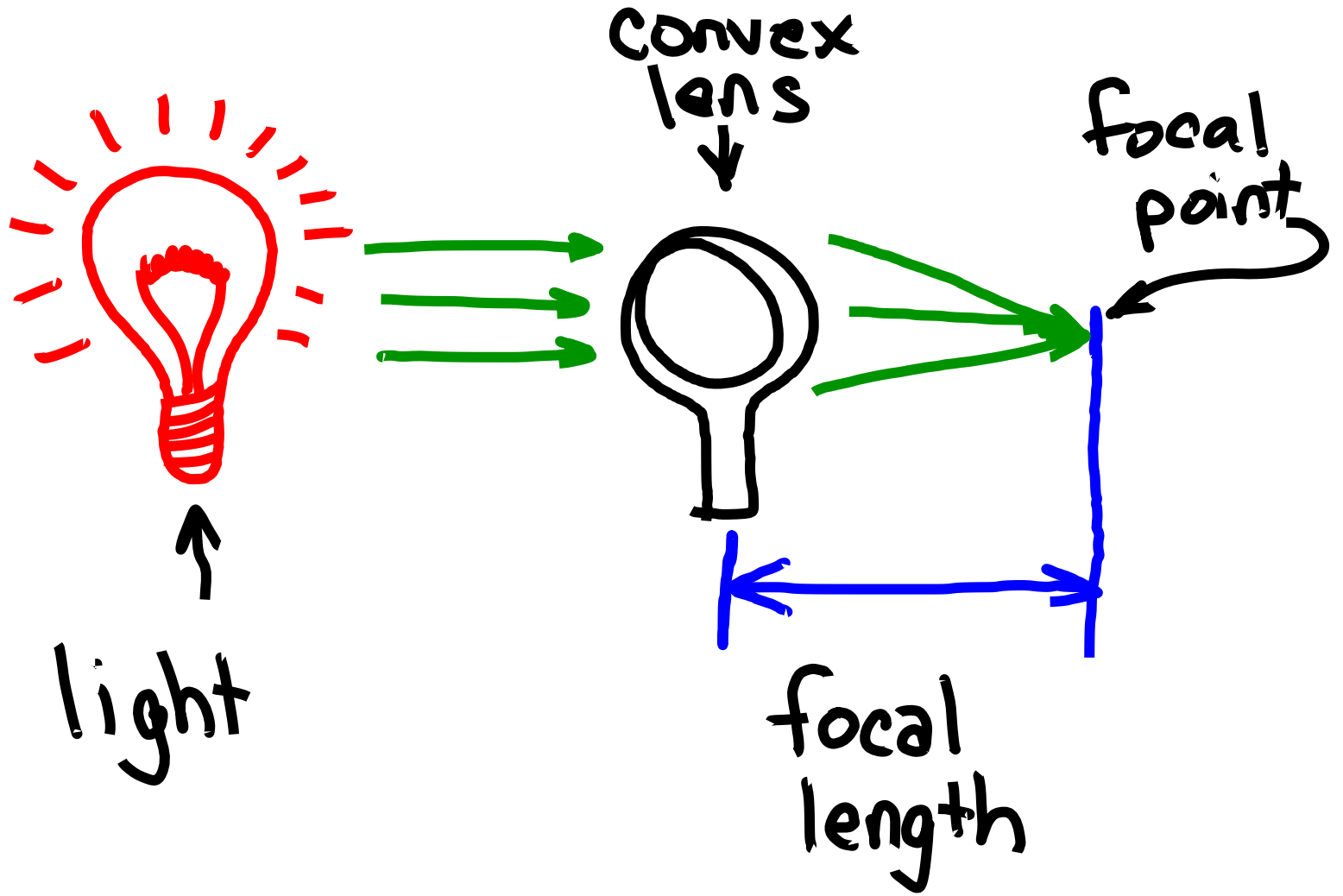
$$\text{magnifying power} = \frac{F_e}{F_o}$$

$F_o$  = (objective lens) focal length

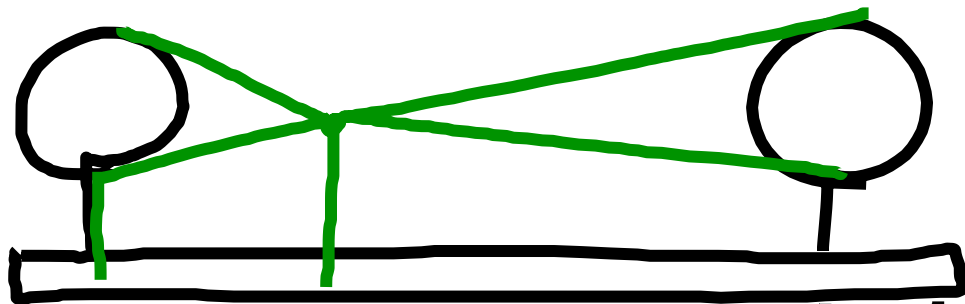
$$\text{magnifying power} = \frac{F_o}{F_e}$$

$F_o$  = (objective lens) focal length

$F_e$  = (eyepiece lens) focal length







eyepiece  
lens

objective  
lens

(shorter  
focal  
length)

(longer  
focal  
length)

# LAB ACTIVITY

OBSERVATIONS: lens 1 2 3 4 5 6

Focal Lengths: \_\_\_\_\_

Eyepiece lens: \_\_\_\_\_

Objective lens: \_\_\_\_\_

Magnification: \_\_\_\_\_

Note your observations

} Use the  
"best"  
combination  
of lenses