

LIGHT LAB

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Class Period 1st

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an instrument which breaks white light down into certain wavelengths (colors)

1. Spectroscope/ (Spectrograph) - Draw and color this instrument below. Draw an eye next to the end where you place your eye and a light bulb at the end that gets pointed toward the light.

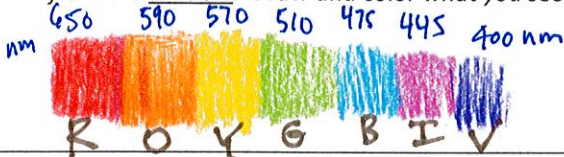


2. Spectroscope- Read page 346 in the red textbook. Explain what a spectrograph (spectroscope) does and why scientists use them.

Astronomers use spectroscopes on telescopes to determine what elements are present in stars (Hydrogen, Helium etc.)

CHEMISTS - use spectroscopes to determine what elements are present in substances (Flame tests)

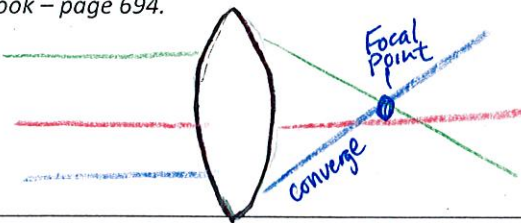
3. Spectroscope- use it to view ultraviolet light coming in from the window. Draw and color what you see:



4. Spectroscope- use it to view fluorescent light coming from the tubes in the ceiling. Draw and color what you see:



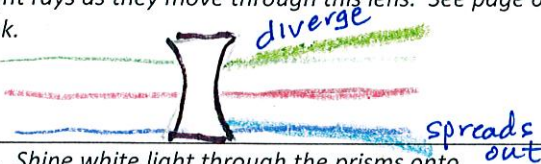
5) Biconvex Lens- Observe the lens and draw it. Draw the path of light rays as they move through this type of lens. See Red book - page 694.



6) Biconvex Lens- Use this lens to read some text in your book. How does this lens affect what you see? Describe below:

Makes text look bigger and closer; this is the lens used in a magnifying glass. light converges or comes together. Far sighted people use these lenses

7- Biconcave Lens - Observe the lens and draw it. Draw the path of light rays as they move through this lens. See page 694 in red book.



8- Biconcave Lens- Use this lens to read some text in your book. How does this lens affect what you see? Describe below:

Makes text look smaller and further away; light diverges (spreads). Near sighted people use these

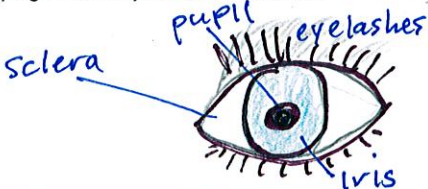
9. Prisms- Shine white light through the prisms onto something white. Draw what you see.



10. Prisms- Experiment with the prisms. What else do you notice as you use the prisms? Record 2 other observations.



11 Mirrors- Look at the mirror. View your eyes. Draw, color, and label the four parts of your eyes that you can see. Refer to page 699 in your red textbook.



I am able to see my pupil, iris, sclera + eye lashes

12 Mirrors- Use two mirrors to reflect light from a flashlight onto a piece of paper. Draw a diagram below showing the number of mirrors used and the path the light followed to the paper.



Used 3 to 4 mirrors to reflect white light onto a piece of paper.

13 Lenses - on the back of this paper draw the 6 different lenses. Name each lens and describe how each lens affects light and/or text.

on back  

14 - Experiment - Record what you did and what you found out. on back

LIGHT LAB (BACKSIDE)

3.5 LIGHT FROM
FLASHLIGHT
ON PHONE



4.5 LIGHT EMITTED
FROM FRONT
OF PHONE (SCREEN)



REFRACTION









Refraction Block



Draw 6 Lenses

See Lenses below

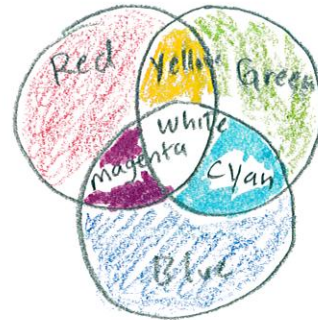
-  Biconvex
-  Biconcave
-  Planoconvex
-  Planoconcave
-  Concavoconvex
-  Convexoconcave

Projection of Light

Draw, color and label

primary colors, Secondary
Colors and white light

See Textbook - page 682 (Fig 4)



Spectroscope - used to refract light and split it into certain wavelengths (colors)

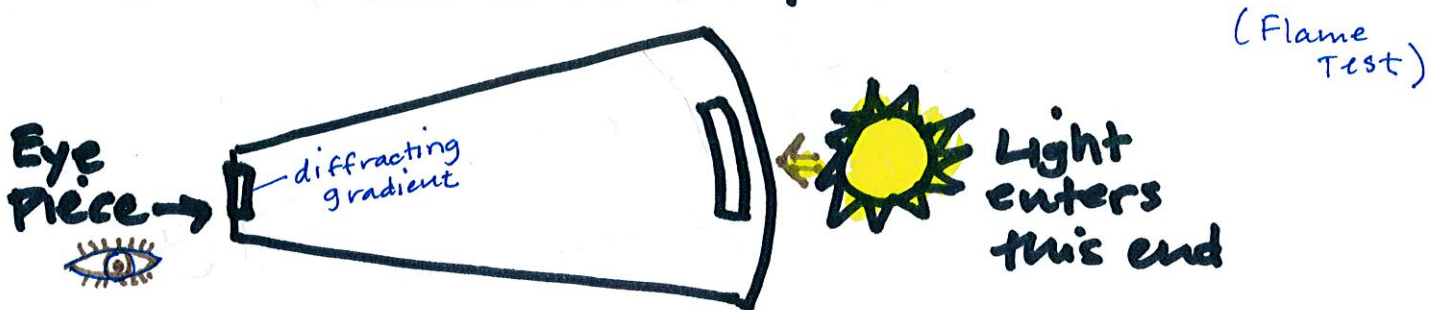
Spectro = Spectrum (range of wavelengths / colors)

Scope = to view

USES:

Astronomers use spectroscopes on telescopes to determine what elements are present in stars. (Hydrogen, Helium etc.)

Chemists use spectroscopes to determine which elements are present in substances.



Ultra-violet Light

16 55 4 4

ROYGBIV

Flashlight

ROYGBIV

Fluorescent Light (Hg)

ROGBIV (missing yellow)

76 5 44

Red = 650 nm

Orange = 590 nm

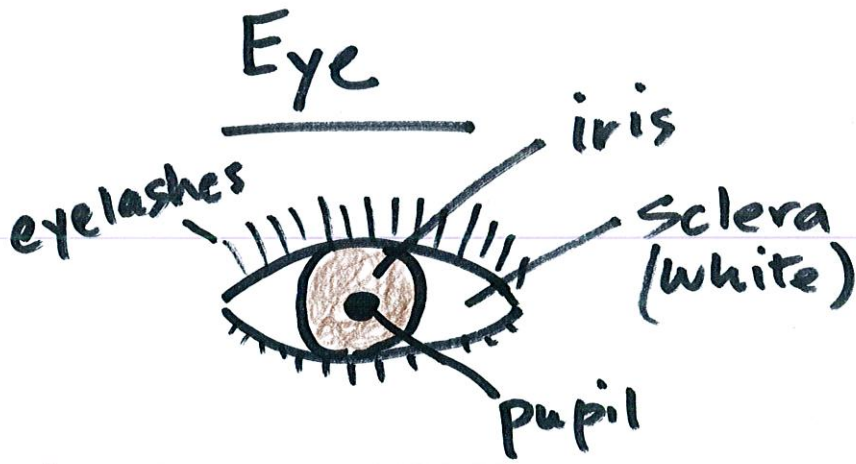
Yellow = 570 nm

Green = 510 nm

Blue = 475 nm

Indigo = 445 nm

Violet = 400 nm



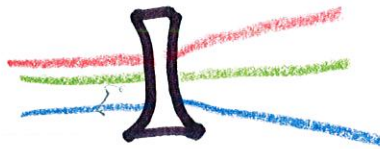
Pg 694

Biconvex Lens



refracts light
 makes light rays
Converge (come together)







Biconcave Lens



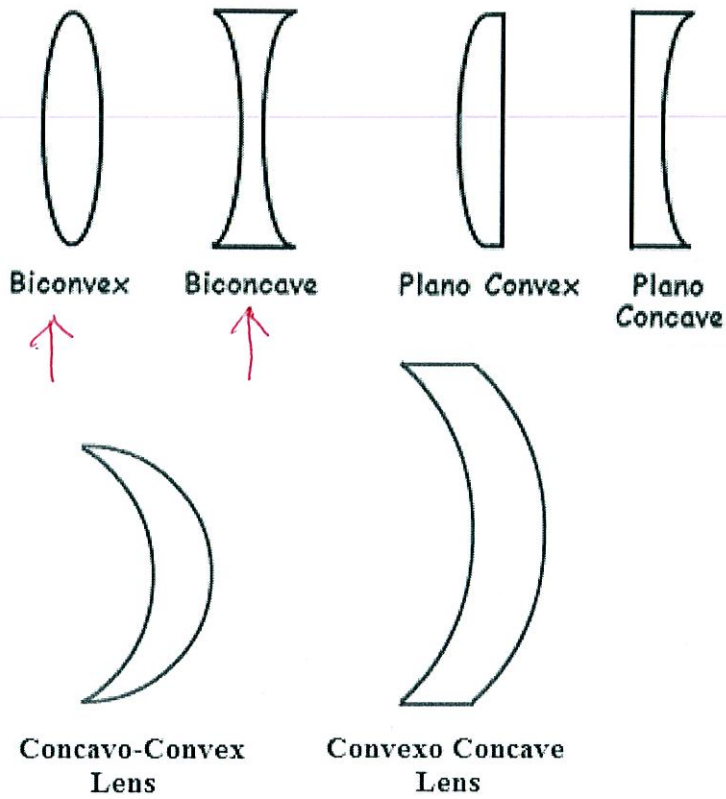
refracts light
 makes light rays
spread apart
 (Diverge)

LENSES

* Lenses refract light.

- ① BICONVEX LENS  - bulges out on both sides
- ② BICONCAVE LENS  - curves inward on both sides.
- ③ PLANO CONVEX LENS  - flat on one side bulges out on other
- ④ PLANO CONCAVE LENS  - flat on one side caves inward on other side
- ⑤ CONVEXO CONCAVE LENS  - bulges out on one side curves inward on other
- ⑥ CONCAVO CONVEX LENS  - curves inward on one side bulges out on other

6 Lenses



6 Lenses

