**Assignment: 4**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_\_**

**Review Sheet – Unit 5 EM/Light**

**Light Matching/The Eye**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Particles of light are called this

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The path of light after it has been reflected

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The path of light as it travels to a surface

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ States that the angle of incidence is equal to the angle of reflection

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The speed of this is faster than that of sound

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The clear, protective outer layer of the eye

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Caused due to an eyeball being too long and having a focus point before the retina

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The cells in the retina sensitive to colors

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The cell in the retina sensitive to low light

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A prism is an example of this that breaks white light into colors

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The change in direction of light as it travels from one medium to another

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Primary colors of light the eye detects

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ This is the most common type of colorblindness that affects about 7% of males

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ This is caused by light that passes through a filter that blocks light waves vibrating horizontally

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ This part of your eye creates nerve impulses of images that will be sent to the optic nerve

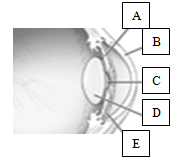
Reflected ray Law of Reflection Cones Polarized Light Light

Red, green, blue Cornea Nearsightedness Retina Photons

Refraction Incident ray Rods Diffraction grating Red, green

**Put the following in order or how light enters and travels through the eye: Retina, lens, cornea, pupil**

**Label the following parts of the eye:**



**Lens vs Mirrors Matching**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Curved out mirror

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Curved in mirror

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lens that is thicker in the middle than the ends

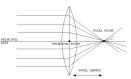
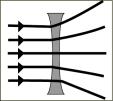
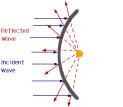
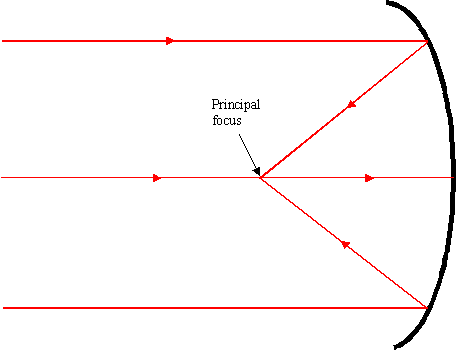
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lens that is thinner in the middle and thicker at the ends

Convex Lens Concave Lens Convex Mirror Concave Mirror

**Label the following as a mirror, prism or lens.**

[](http://images.google.com/imgres?imgurl=http://scv.bu.edu/~aarondf/Webgifs/prism.gif&imgrefurl=http://scv.bu.edu/~aarondf/avgal.html&h=341&w=576&sz=5&tbnid=HfSdpv-2_fGBFM:&tbnh=78&tbnw=132&hl=en&start=3&prev=/images?q=prism&svnum=10&hl=en&lr=) [](http://images.google.com/imgres?imgurl=http://www.heussneroptics.com/Concave%20lenses%201.jpg&imgrefurl=http://www.heussneroptics.com/About%20Heussner%20Optics.html&usg=__o7f9yfPD_UljsVmpGqaSwad2j2c=&h=1728&w=2304&sz=899&hl=en&start=27&tbnid=xw5mjlAemiNqvM:&tbnh=112&tbnw=150&prev=/images?q=lenses&start=18&gbv=2&ndsp=18&hl=en&safe=active&sa=N) [](http://images.google.com/imgres?imgurl=http://www.domesandmirrors.com/imgs/cvi.jpg&imgrefurl=http://www.domesandmirrors.com/convex.htm&h=225&w=225&sz=10&tbnid=kKuFDyj7GlEkDM:&tbnh=102&tbnw=102&hl=en&start=4&prev=/images?q=convex+mirror&svnum=10&hl=en&lr=)

**Label the following as a concave mirror, convex mirror, concave lens, convex lens.**

[](http://images.google.com/imgres?imgurl=http://www.saltspring.com/brochmann/math/lens/Image85.gif&imgrefurl=http://www.saltspring.com/brochmann/math/lens/Lenses.html&h=346&w=568&sz=6&tbnid=ittC2hj6qA179M:&tbnh=79&tbnw=131&hl=en&start=12&prev=/images?q=convex+lens&svnum=10&hl=en&lr=&sa=G) [](http://images.google.com/imgres?imgurl=http://sciencekit-onlineservices.com/images/SK_glasses1.gif&imgrefurl=http://sciencekit.com/article.asp_Q_ai_E_142&h=281&w=314&sz=4&tbnid=g1tM_c1M6WrogM:&tbnh=101&tbnw=113&hl=en&start=4&prev=/images?q=concave+lens&svnum=10&hl=en&lr=) [](http://images.google.com/imgres?imgurl=http://www.physics.carleton.ca/~watson/1000_level/Waves_and_Optics/Gifs/2-D_convex_mirror.gif&imgrefurl=http://www.physics.carleton.ca/~watson/1000_level/Waves_and_Optics/1008_Geometric_Optics.html&h=386&w=441&sz=5&tbnid=6vKAQyZ06KynaM:&tbnh=107&tbnw=123&hl=en&start=5&prev=/images?q=convex+mirror&svnum=10&hl=en&lr=) 

**Electromagnetic Spectrum Matching**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The EM spectrum does not include this type of wave

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Used in communication and cooking

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Discovered by Roetegen in 1895, used to check for cracks in solid substances

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Beam of coherent light all one color used in supermarket checkouts

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Emitted from radioactive substances, very high frequency

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Used for entertainment, became common in the 1950s

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Marconi involved in discovering and using these waves around 1900

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Used to kill germs, can cause sunburn

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Used in remote controls, emitted from hot objects

Microwaves Ultraviolet X-rays Gamma rays Radio

Infrared Sound Laser Television