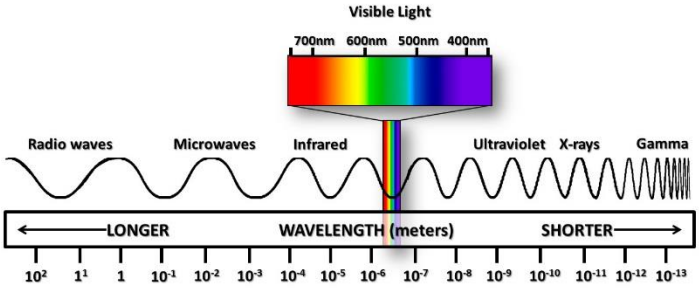
Gr 8 Light Unit Review

Name _____
Date _____
Block _____

1. **The Electromagnetic Spectrum:**

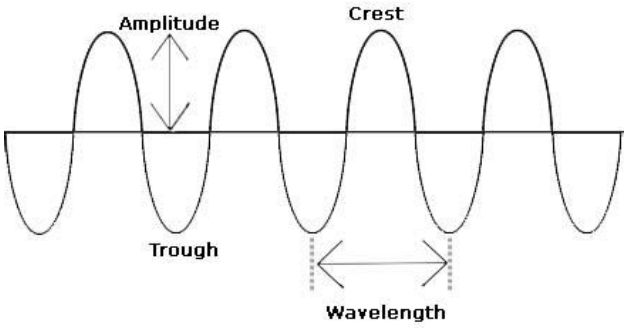
Know these terms…
Amplitude, crest, energy, frequency, trough, wave, wavelength, light, reflection, refraction, spectrum, visible light, wave model of light, electromagnetic radiation, gamma rays, infrared rays, microwaves, radio waves, ultraviolet waves, X rays

Know the electromagnetic spectrum



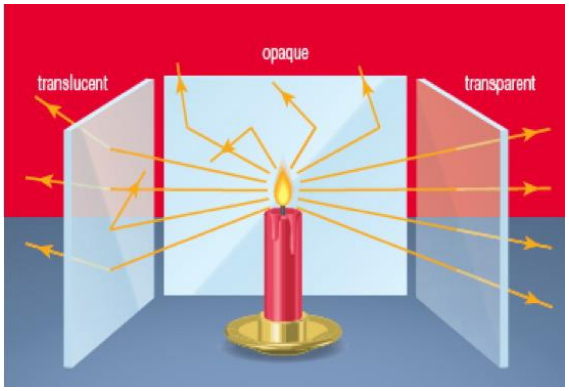
- How the energy level changes as you increase frequency – connection between frequency and wavelength
- Uses for each type of radiation (eg. X-rays used for looking at bones/teeth/luggage)
- ROYGBIV – the differences between the colors, why we see different colors, differences in energy levels.

- **Know the parts of a wave**

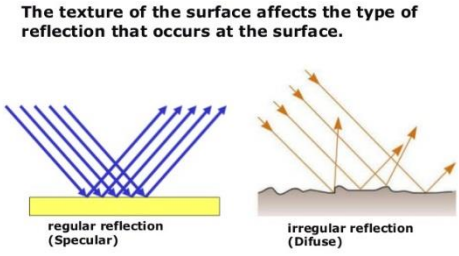


2. **Lenses and mirrors**

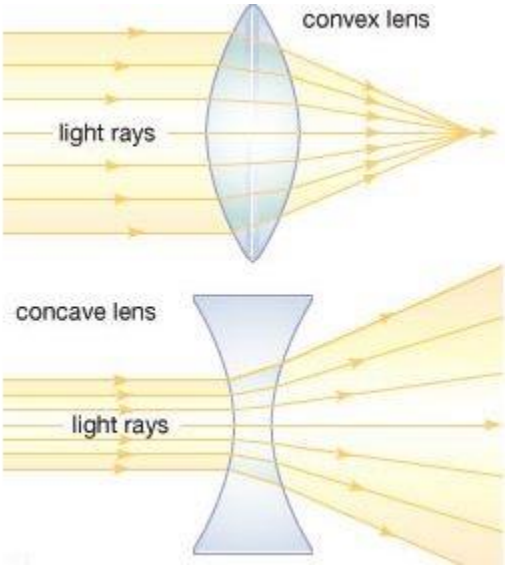
Know these terms…
angle of incidence, angle of reflection/refraction, Incident ray, Reflected/Refracted ray, normal, opaque, translucent, transparent, concave, converging, convex, diverging, focal point, focal length, lens, mirror, ray model of light, shadow, absorption, transmission, law of reflection



-Know what happens when light hits an opaque, translucent, transparent object – be able to draw the light rays



- Know what happens when light hits a plane and curved mirror/lens
- Know the difference between 'reflection' and 'refraction'
- Be able to draw ray diagrams to show the behavior of light when it hits an object
- Describe the differences in the image in a plane/convex/concave mirror – upside down/right side up/size changes
- Know some specific uses for curved lenses/mirrors (eg. Convex mirror for security in stores, concave lens for correcting vision (near sightedness))



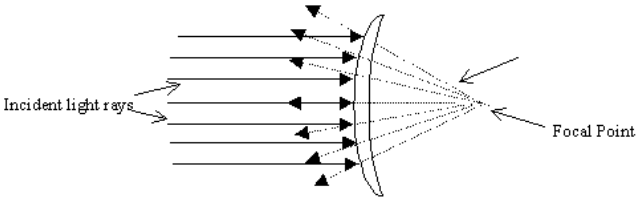


Figure 1a: A convex mirror diverges the reflected light rays so the image appears behind the mirror.

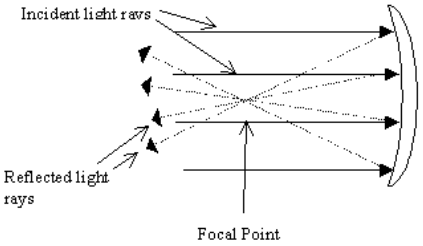


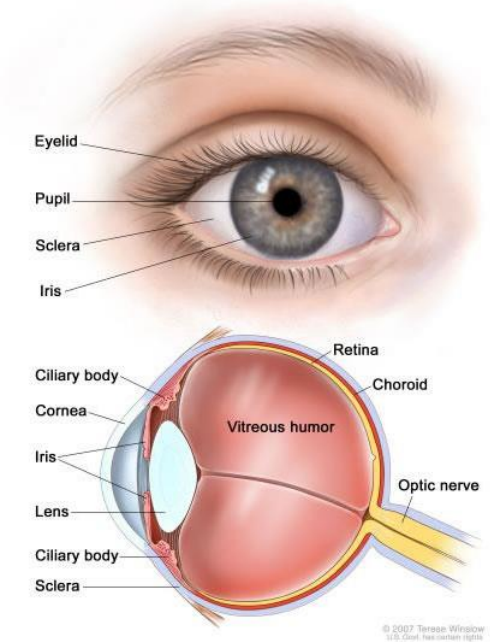
Figure 1b: A concave mirror converges the reflected light rays so an image may appear in front of the mirror.

3. **<u>The eyeball and extending our vision</u>**

Know these terms…

Astigmatism, near/far sighted, choroid coat, tapetum, Vitreous/aqueous humor, eye lens, blind spot, cornea, iris, optic nerve, pupil, retina, rods/cones, sclera, laser light, optical fibers, refracting telescope, reflecting telescope, total internal reflection,

- Know the parts of the eyeball and what they do (refer to eyeball lab)



- Know the difference between a refracting/reflecting telescope
- Know (the basics) of how a laser works
- Know what internal reflection is, and uses for optical fibers