PHYSICS CONTENT FACTS

The following is a list of facts related to the course of Physics. A deep foundation of factual knowledge is important; however, students need to understand facts and ideas in the context of the conceptual framework. This list is not intended to provide a comprehensive review for State and National Assessments. Its purpose is to provide a highlight of the factual material covered in Physics. This list is not all inclusive, be sure to check Nevada State Standards and your district syllabi.

OPTICS

- The index of refraction for a transparent substance is the ratio of the speed of light in a vacuum to the speed of light in that substance $n_s = \frac{c}{v_s}$
- Snell's Law (Law of Refraction) is used to determine how much refraction occurs when a ray of light passes from one medium to another $n_1 \sin\theta_1 = n_2 \sin\theta_2$
- Diffuse reflection occurs from dull/irregular surfaces while regular reflection occurs from mirror type surfaces
- Real images are always inverted
- Virtual images are always upright
- Converging devices are convex lenses and concave mirrors
- Diverging devices are concave lenses and convex mirrors
- Diverging lens (concave) produce only small virtual images
- Flat mirrors form virtual images that are the same distance from the mirror's surface as the object is
- The mirror equation relates object distance, image distance, and focal length $\frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}$
- The magnification equation relates image height or distance to object height or distance $M = \frac{h_i}{h_o}$
- Light rays bend away from the normal as they gain speed and a longer wavelength by entering a slower index of refraction (**n**) medium {frequency remains constant}
- The focal length of a converging lens (convex) is shorter with a higher index of refraction (**n**) value lens or if blue light replaces red