***Lesson Plans for the Week of: 3/13/17 Teacher: Hough Course: Physics Period: 3***

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| Elements of  a Lesson | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| Objective/  Focus/  Essential  Question | PH.8b,c  Review difference between transverse wave and longitudinal wave; examples of each  Understand light in terms of a wave model  apply the law of reflection for flat mirrors | Continued from previous day | PH.8b,c  a) describe images formed by flat mirrors  b) correctly distinguish between real and virtual images  c) Students will identify the focal point and focal length of a mirror | PH.8c  a) Student will correctly apply the mirror equation  b) Understand parabolic mirrors and the aberration that these mirrors avoid | PH.8c  Students will understand the meaning of a material’s index of refraction  Students will understand the two types of lenses, their parts, and apply the thin lens equation |
| Lesson/Act.  Type of Presentation | Whole group:  1) go over math examples for using pendulum period and wave speed equation  2) Review from 8th grade: transverse wave versus longitudinal wave  3) Review: Light is a transverse wave  4) Review relationship between wavelength and frequency;  5) Light is not a mechanical wave (It does not need a medium.).  6) intensity of light is related to the amplitude of the light waves  7) color of the light is related to the frequency of the light  8) color of object is the avelength of light that is REFLECTED OFF the object  9) fun if time: color mixing with lights vs color mixing with pigments  --lights mix (like in a concert)  --pigments mix by subtraction  10) Explain and demonstrate the law of reflection using the flashlight and flat mirror |  | a) review definition of virtual and real images  b) review the difference between concave and convex spherical mirrors  c) Explain the significance of the focal point—explain how it works in a concave and a convex lens;  d) Define focal length and radius of curvature | a) Explain the mirror equation and its parts (with significance of the negative values)  b) model use of wave equation  c)Illustrate how law of reflection causes spherical aberration  d) use textbook to illustrate how a parabolic mirror eliminates these distortions | a) explain refraction and index of refraction; compare index of refraction for air, water, diamond (refer to p. 484 chart)  b) lenses refract light; define converging and diverging lenses; position of image can be predicted using thin lens equation (emphasize importance of negatives and positives—table in textbook outlines this)  c) model use of thin lens equation, with magnification |
| Evaluation |  |  | exit pass: images and law of reflection | homework |  |
| Extension/  Homework | p. 375#2-4; p. 383#2-4 |  | no homework—will occur after the next lesson | Homework p. 458 #2,4 p. 462#2,4 | Homework: p. 495#2-4 |

Materials:

Monday: wave apparatus; wave simulations on Phet: https://phet.colorado.edu/sims/html/color-vision/latest/color-vision\_en.html

Tuesday: Teacher-made notes; art pastels; computer Word program—the custom color window;

Wednesday: mirrors

Thursday:

Friday: refraction tank; converging and diverging lenses