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

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| Elements ofa Lesson | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| Objective/Focus/Essential Question | PH.8b,cReview difference between transverse wave and longitudinal wave; examples of eachUnderstand light in terms of a wave modelapply the law of reflection for flat mirrors | Continued from previous day | PH.8b,ca) describe images formed by flat mirrorsb) correctly distinguish between real and virtual imagesc) Students will identify the focal point and focal length of a mirror | PH.8ca) Student will correctly apply the mirror equation b) Understand parabolic mirrors and the aberration that these mirrors avoid | PH.8cStudents will understand the meaning of a material’s index of refractionStudents 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 equation2) Review from 8th grade: transverse wave versus longitudinal wave3) Review: Light is a transverse wave4) 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 waves7) color of the light is related to the frequency of the light8) color of object is the avelength of light that is REFLECTED OFF the object9) fun if time: color mixing with lights vs color mixing with pigments--lights mix (like in a concert)--pigments mix by subtraction10) Explain and demonstrate the law of reflection using the flashlight and flat mirror |  | a) review definition of virtual and real imagesb) review the difference between concave and convex spherical mirrorsc) 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 equationc)Illustrate how law of reflection causes spherical aberrationd) 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