***Lesson Plans for the Week of: 11/28/16 Teacher: Hough Course: Physics Period: 3***

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| Elements of  a Lesson | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| Objective/  Focus/  Essential  Question | PH.4a,5c,e  --hypothesize about the motion of a horizontally launched object | PH.2e, 5e  Recognize what makes something a projectile  Solve horizontally launched projectiles problems | PH.2e; 5e  Practice solving horizontally launched projectiles | PH.4a;5e  Investigate the motion of Launched Projectiles | PH.2e; 5c,d,e  Review for Test |
| Lesson/Act.  Type of Presentation | Whole group:  Go over quiz  Students will model hypotheses to illustrate their answer to the following question: If 2 balls start at the same height, which will hit the ground first: a ball that is dropped or a ball that is launched horizontally (like pushed sideways off the end of a table)?  Use launcher to confirm the real answer  Define projectile; give examples; path is called a trajectory and is parabolic  Explain that the horizontal and vertical components of projectile motion are not connected: the horizontal component does not change; the vertical component falls like an object which has been dropped | Whole group:  Define projectile; give examples; path is called a trajectory and is parabolic  Explain that the horizontal and vertical components of projectile motion are not connected: the horizontal component does not change; the vertical component falls like an object which has been dropped  Note the steps involved in solving problems involving horizontally launched projectiles  Model: solving projectile problem p. 97#1  Individual:  Practice solving projectile problem p. 97#3  Discuss p. 109 #30 Does dropped object or horiz lauched object have greater speed? (Review scalar aspect of speed and the consequences of vector aspect of velocity.) | Whole group:  Take questions about homework  Individual:  Practice problems about horizontally launched projectiles | Whole group:  Hypothesize about launching arrangement that yields a projectile that travels: a) the highest; b) the farthest, horizontally (range); and c) the greatest combination of height and range  Small groups:  Groups of students will take turns utilizing the launcher to answer the hypothesis questions.  [2-3 students/group; Angles in degrees: 0, 30, 45, 60, 90]  Whole group:  Answer the hypothesis questions based on results from activity. | Small groups:  Review for test  --4 practice problems to solve (with discussion): Break into 2 groups:  a) projectile problem and 1D F=ma problem (forces in 2 directions)  b) 2D net force problem and one direction F =ma problem  Groups will present results and reasoning  Whole group:  --Review vocabulary |
| Evaluation |  | Results of student practice | Student questions, processes, and accuracy of work | Students responses |  |
| Extension/  Homework |  | p. 97#2,4 p. 99#2 (bottom of page)p. 109-110 #31-32A |  |  |  |

Materials:

Monday: U5ws1; textbook

Tuesday: p. 97#2,4 p. 99#2 (bottom of page)p. 109-110 #31-32A

Wednesday:

Thursday: projectile launcher, student notebooks

Friday: