***Lesson Plans for the Week of: 2/6/17 Teacher: Hough Course: Physics Period: 3***

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| Elements of  a Lesson | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| Objective/  Focus/  Essential  Question | PH.2a; 4a;5b  --relate centripetal force to centripetal acceleration  --apply the equations for centripetal acceleration and centripetal force | PH.2a; 4a;5b; 6a;7a  Review for test | PH.2a;4a;5a,b;6a,b  Test about momentum and circular motion | PH.5d,e; 10a  Understand principles of Law of Universal Gravitation (LUG) | PH.10a  apply Coulomb’s Law to calculate the electric force between 2 charged particles |
| Lesson/Act.  Type of Presentation | Review tangential speed and centripetal acceleration; use Circular Motion Gizmo to illustrate  Review factors which affect circular motion  Model Sample problem: p. 226#1  Remind students of Newton’s 2nd Law and have students relate the acceleration on duckie to the force on the duckie; remind students that if it affects acceleration, then it will affect force  Explain units, symbols, direction, and equation for centripetal force  Reinforce that there is no centrifugal force, only inertia and centripetal motion  Model Sample problem: p. 228#2  Today or tomorrow: include clip from Master and Commander video to illustrate recoil and conservation of momentum in a cannon | Whole group  Review concepts affecting  a)conservation of momentum  b) types of collision  c) circular motion and factors affecting it | Individual:  Test | Whole group:   1. warm-up: discussion of the effect of very small forces on regular items 2. main lesson has two main parts:   i) features about gravity: attractive, weak, studied by Newton; force involves the gravitational field being created by each object, then the fields interact; observed in planetary motion  ii) equation for Newton’s Law of Universal Gravitation: Sample problem: p. 232 #2 also sample problem on p. 232 | Whole group:   1. The electrical force between two charged particles can be calculated. This was determined by   Charles-Auguste de Coulomb: French physicist, late 1700’s, contemporary of Ben Franklin; contributed to the study of how soil exerts force against walls and contributed to improved design of retaining walls; name on Eiffel tower.   1. Coulomb’s Law (equation) —signs only indicate whether force is attractive or repulsive   Sample problem p.556 #1 |
| Evaluation | Teacher observation |  |  | student notes, results of homework | teacher observation and results of homework |
| Extension/  Homework | p. 226#2-4; p. 228 #1,3,4; p. 261#10b (m = 414 kg) |  |  | p. 232 #3a-b; p. 262 #18-19  The equation from today’s lesson will be used in the next lesson to illustrate the concept of the inverse square law. | p. 556 #2a,3); p. 571 #16-17 |

Materials:

Monday: rubber duckie; video clip from Master and Commander with cannon being shot

Tuesday: review guide

Wednesday: teacher made test

Thursday:

Friday: worksheet from textbook: Chapter 7 Section 3 supplemental worksheet #1-2