Ms. Hoppa

8th Grade Ingenuity

*Welcome to two weeks of Science at home! I have provided activities you can try at home (or you can watch a video). There are also some links to online simulations. If you have issues with anything online I have provided textbook pages to do instead. You do not need to do both!*

*You can submit work via email (*[*nlhoppa@bcps.k12.md.us*](mailto:nlhoppa@bcps.k12.md.us)*) or Edmodo. I need your self evaluation/reflection to finalize the rocket project grade.*

***Happy exploring!***

**March 16, 2020**

**Forces and Motion Review**

**Objective**: Scholars will review forces and motion and complete quiz with an 80% or better demonstrating understanding.

Vocabulary:

Gravity

Law of Universal Gravitation

Weight

Projectile

Trajectory

Parabola

Friction

Air resistance

Static friction

Sliding friction

Rolling friction

Fluid friction

**Exploration:** Review Forces and Motion. Use your notes, browse the textbook, google videos. Move some stuff (including you) and ponder its journey…

**Explanation:** Complete review study problems and study guide. Submit via email or edmodo along with any questions.

**Evaluation:** Complete quiz (Edmodo)

(Textbook Chapters 2 and 3. Focus on Chapter Reviews)

**March 17th, 2020**

**Momentum (Day 3)**

**Objective:** Scholars will know whether momentum is conserved by completing an online simulation

**Vocabulary:** Momentum Impulse

**Exploration**: Use PhET Collisions to explore what factors affect collisions (mass and velocity)

http://phet.colorado.edu/sims/collision-lab/collision-lab\_en.html

Notice that for elastic collisions, the total kinetic energy (and total momentum) does not change.

**Explanation:** Conservation of Momentum PPT (see Edmodo)

**Evaluation:** complete worksheet and submit along with online simulation

(Textbbok Chapter 3 pages 87,88. Lab “The Momentum of Colliding Objects. You can guess at mass if needed and substitute balls of various sizes depending on what you have at home).

**March 18-19, 2020**

**Principles of Fluids/Bouyancy**

**Objective** Scholars will know how to describe the buoyancy of an object by predicting whether various objects will float.

**Vocabulary** Buoyancy, Archimedes Principle

**Exploration**

Either try this at home or look at a video onine. Why do you think an egg in salt water floats but an egg in regular water does not?

**Explanation**: Students will record notes from Bouyancy PPT (see Edmodo)

**Elaboration:**

Use the following website <http://phet.colorado.edu/en/simulation/buoyancy>

For various densities of blocks and liquids, students will predict whether the block will float in the liquid or not.

Please note: the force of gravity and the buoyant force for each block. When the block is fully submerged the teacher will point out that the buoyant force is equal to the weight of the block. If the block is not fully submerged, the buoyant force is less than the weight of the block because the block is not displacing its full volume.

**Evaluation:** Show me your notes!

(Textbook Chapter 16 p485-496)

**March 20, 2020**

**Principles of Fluids/Bernoulli's Principle**

**Objective:** Scholars will know how to describe Bernoulli's Principle by using an online simulation to investigate how fluid speed affects fluid pressure

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**Vocabulary**: Bernoulli's Principle

**Dril**l: The wooden block has a density of 0.8 g/cm and a volume of 20 cm. Water has a density of 1 g/cm. How much water is the water displacing?

**Exploration**: Hang 2 empty soda cans side by side from a structure I your house (closet pole where you hang clothes or anywhere they can hang freely). You can also look at a video. Try to make the soda cans come together without touching them and with both cans facing you (not one behind the other).

**Explanation**: Keep in mind as you complete the online simulation.

*What is a fluid?*

*A substance with the ability to flow and to alter its shape*

*Liquids and gases are both fluids*

*Liquids have a definite volume and gases do not.*

In this simulation you will adjust the diameter of a pipe with a liquid flowing through it to see how the speed that a fluid is flowing affects the pressure of the fluid. (See worksheet)

<http://phet.colorado.edu/en/simulation/fluid-pressure-and-flow333>

**Explanation continued:** Complete notes on Bernoulli's principle (See Edmodo)

**Evaluation** Submit worksheet from online simulation (along with any questions)

(Textbook Chapter 16 p485-496)