

Welcome to AP Physics II. I hope that you will enjoy the challenges offered by the study of Physics II.

You need to sign out a textbook to complete some of this work.

The AP Physics 2 course covers a lot of territory topic wise. Topics are: Fluids, Thermodynamics, Electricity and Magnetism, Light and Optics, Quantum Theory, Atomic Physics and Nuclear Physics. Because of this, and the early test date, Wednesday, May 9, 2018, it is necessary to make our first days productive. We will start with the study of Fluids, which is chapter 11 in the text.

You are not expected to understand all of the equations presented and all of the problem solving found in the chapter, but rather the intent is to get you thinking about the Physics of fluids. Fluids can be liquids or gases; they can exert pressure and can flow. Leafing through chapter 11 and looking at the photographs and sketches will give you a good idea about various aspects of fluids.

The summer assignment has two components.

Part 1: Define/explain the below terms & solve the below problems with pressure and density.

Mass density
 Specific gravity
 Pressure
 Atmospheric pressure
 Absolute pressure
 Gauge pressure
 Pascal's principle
 Archimedes principle
 Ideal fluid
 Streamlines
 Streamline flow
 Steady flow
 Unsteady flow
 Equation of continuity
 Bernoulli effect (equation)
 Viscous flow

Questions/problems from ch 11.

Check your understanding (CYU) are questions throughout the chapter. Answer the following ones, then check the answer at the back of the book. CYU # 1,2,4-10

Focus on Concepts p341 # 1,4,9,10,12,13,16,18

Problems p 341-342

2, 4, 11,12, 14, 23, 28, 33, 41, 58, 63

If you have difficulty with some of them, just do the best you can. Examine sample problems for hints.

Part 2: Complete **either** of the below options explained on side two:

-*Option 1* Find a fluid related You tube video and write a one half to full page paper explaining what is happening and the Physics behind it as best you can. Include the You tube link as well. You are encouraged to share this the first day of class.

-*Option 2:* Write a one to two paper about some aspect of fluids. You should include a visual and sources. There are countless possibilities. For example:

Why do baseballs curve, sink and 'rise'?

How does Scuba gear work?

Who was Archimedes and what are some of the Physics principles and inventions credited to him?

How do blood flow rates, blood pressure and the heart serve as an excellent example of a fluid dynamics system?

Why is it so difficult to design a plane to go from rest to Earth orbit?

What causes powerful fluid dynamics systems known as hurricanes and tornadoes?

What are some of the surprising Physics of Super fluids?

There are many other options. Follow your interests. You are encouraged to share this with the class day one.

This assignment is due on day 1. We will view videos and discuss research as well as start discussing the Fluid concepts that you investigated in this assignment. The point total for the assignment is as follows:

terms to define: 32 points

CYU : 18 points

FOC :32 points (You get the points right or wrong as long as you have an explanation.)

problems: 33 points. If you cannot solve a problem, just set it up with givens a sketch etc. Do what you can, you will still earn the points if you at least set up the problems.

Video/research : 50 points

Organization 15 points. The assignment should be neat and logically organized for ease of correcting

Total point value is 180 points. This assignment is due on Day 1 but it will not be collected and graded until day 2 so that all the video's can be seen and research described.