AP PHYSICS C - *SUMMER ASSIGNMENT*
THE BOLLES SCHOOL

Congratulations on accepting the challenge of AP Physics C for next school year! To maximize our class time, students enrolled in AP Physics C must complete the following tasks prior to the first day of class.

1. FIRST-YEAR PHYSICS REVIEW

AP Physics C is a second-year Physics course that follows a year of AP Physics 1. This course also requires at least co-enrollment in either AP Calculus AB or BC. The Summer Review Worksheet checks your knowledge of important formulas from first-year Physics.

- The "AP Physics C Summer Review Worksheet" is available at the end of this document.

- Complete the worksheet and bring your completed assignment to the first day of class. Your solutions must answer ALL five items for each formula to be scored as complete.

2. TEXTBOOK

All students should download the following FREE digital textbook for use in the class.

- Download the pdf of Volume 1 of ***OPENSTAX UNIVERSITY PHYSICS***
  https://openstax.org/details/books/university-physics-volume-1

- Students should also purchase the latest edition of the Princeton Review exam prep publication ***AP PHYSICS C PREP***. This may be done later in the year when the 2024 edition is published.

- The ***5 STEPS TO A 5: AP PHYSICS C*** prep book by Greg Jacobs may also be helpful in addition to the required prep book above.

3. REQUIRED SOFTWARE

Vernier's LoggerPro will be used for graphical and video analysis in class and, more importantly, in laboratory investigations.

- Download and install on your laptop or tablet the LoggerPro software at the following links according to your operating system (if you haven't already done so):

Windows 11, 10, 8.1, 7	**MacOS 10.12, 10.11, 10.10**
http://www.vernier.com/d/qfijq	http://www.vernier.com/d/p0pgf

- The Chromebook version of LoggerPro is not recommended as it does not allow video analysis, which will be performed in several laboratory exercises.

AP PHYSICS C
SUMMER REVIEW WORKSHEET
This GRADED assignment is DUE the first day of class in August!

INSTRUCTIONS: ***For each of the following basic mechanics formulas that you learned in first-year Physics, complete the five items below. If you are unfamiliar with the formula, feel free to look it up on the Internet or in a Physics text (and don't worry … we'll be covering all of them again!).***

(1.) If the formula is the statement of a named Law or Theorem, NAME it.
(2.) Identify the MEANING and STANDARD UNIT for each variable in the formula.
(3.) If the formula contains a CONSTANT, identify the numerical value and units for that constant.
(4.) REARRANGE the formula to solve for each of the variables in the formula.
(5.) If the formula can only be used under CERTAIN CONDITIONS, name those conditions.

$$x = \frac{1}{2}\left(v_i + v_f\right)t$$

$$x = v_i t + \frac{1}{2}at^2$$

$$v_f{}^2 = v_i^2 + 2ax$$

$$v_f = v_i + at$$

$$\Sigma F = ma$$

$$W = mg$$

$$F_f = \mu F_N$$

$$v_x = v\cos\theta$$

$$v_y = v\sin\theta$$

$$x = v_x t$$

$$y = v_y t + \frac{1}{2}at^2$$

$$v = \frac{2\pi r}{T}$$

$$a_c = \frac{v^2}{r}$$

$$T = \frac{1}{f}$$

$$T = 2\pi\sqrt{\frac{L}{g}}$$

$$T = 2\pi\sqrt{\frac{m}{k}}$$

$$p = mv$$

$$Ft = m\Delta v$$

$$m_A v_A + m_B v_B = m_A v_A{}' + m_B v_B{}'$$

$$F_g = \frac{Gm_1 m_2}{r^2}$$

$$W = F\cos\theta\ d$$

$$W = \Delta E$$

$$P = \frac{W}{t}$$

$$U_g = mgh$$

$$U_s = \frac{1}{2}kx^2$$

$$K = \frac{1}{2}mv^2$$

$$\tau = F\sin\theta r$$

$$I = \Sigma mr^2$$

$$\Sigma\tau = I\alpha$$