AP PHYSICS

Name: _____

Period: _____ Date: _____

DEVIL PHYSICS

BADDEST CLASS ON CAMPUS

GIANCOLI READING ACTIVITY
Sections 6-1 to 6-2

1. Big Idea(s):
   a. The interactions of an object with other objects can be described by forces.
   b. Interactions between systems can result in changes in those systems.
   c. Changes that occur as a result of interactions are constrained by conservation laws.
2. Enduring Understanding(s):
   a. Interactions with other objects or systems can change the total energy of a system.
   b. The energy of a system is conserved.
3. Essential Knowledge(s):
   a. Mechanical energy (the sum of kinetic and potential energy) is transferred into or out of a system when an external force is exerted on a system such that a component of the force is parallel to its displacement. The process through which the energy is transferred is called work.
      i. If the force is constant during a given displacement, then the work done is the product of the displacement and the component of the force parallel or antiparallel to the displacement.
      ii. Work (change in energy) can be found from the area under a graph of the magnitude of the force component parallel to the displacement versus displacement.
   b. A system with internal structure can have potential energy. Potential energy exists within a system if the objects within that system interact with conservative forces.
      i. The work done by a conservative force is independent of the path taken. The work description is used for forces external to the system. Potential energy is used when the forces are internal interactions between parts of the system.
   c. Energy can be transferred by an external force exerted on an object or system that moves the object or system through a distance; this energy transfer is called work. Energy transfer in mechanical or electrical systems may occur at different rates. Power is defined as the rate of energy transfer into, out of, or within a system. [A piston filled with gas getting compressed or expanded is treated in Physics 2 as a part of thermodynamics.]
4. Learning Objective(s):
   a. The student is able to make predictions about the changes in the mechanical energy of a system when a component of an external force acts parallel or antiparallel to the direction of the displacement of the center of mass.
   b. The student is able to design an experiment and analyze data to examine how a force exerted on an object or system does work on the object or system as it moves through a distance.

c. The student is able to design an experiment and analyze graphical data in which interpretations of the area under a force-distance curve are needed to determine the work done on or by the object or system.

d. The student is able to predict and calculate from graphical data the energy transfer to or work done on an object or system from information about a force exerted on the object or system through a distance.

e. The student is able to make claims about the interaction between a system and its environment in which the environment exerts a force on the system, thus doing work on the system and changing the energy of the system (kinetic energy plus potential energy).

f. The student is able to predict and calculate the energy transfer to (i.e., the work done on) an object or system from information about a force exerted on the object or system through a distance.

5. Read sections 6-1, ***Work Done by a Constant Force***, and 6-2, ***Work Done by a Varying Force*** in your textbook.

6. Use the Cornell Notes system to take notes on the lesson material. You have the following options:

   a. You can print multiple copies of one of the forms on the following pages of this document and handwrite your notes.

   b. You can use the MS Word form supplied below and type your notes.

      i. You can then print your work and submit a hardcopy, or

      ii. You can upload your assignment to Focus. If you choose this option, you must use a filename in the format, "LastnameFirstinitialPerXAsgnmtName". For example, "SmithKPer4ReadActT9-3.doc"

   c. You can take notes on notebook paper using the Cornell Notes format and submit the hardcopy.

7. When using this form, remember the **Five R's of Notetaking**:

   a. ***Record*** – the most important or emphasized information

   b. ***Reduce*** – and synthesize information wherever possible, making it as concise as you can

   c. ***Recite*** – read your notes out loud

   d. ***Reflect*** – and consider how this information is connected to your personal experiences and what you already know

   e. ***Review*** – look over your notes more than once

8. For this activity, there are no assigned topics – it is up to you to decide which topics are important and what items should be covered in your notes.

9. Answers may be typed or neatly printed. <u>You do not need to include this page of instructions with your assignment</u>.

10. Note: The following computer skills should be practiced:

   a. Use Microsoft Equation to type any equations.

   b. Drawings may be freehand, but try to make use of the 'Shapes', 'Insert Picture' or 'Insert Clipart" functions of MS Word.

   c. A reading assignment may contain drawings that would be useful in your notes. If you have scanning capability, you should practice scanning pictures and inserting them into documents. As you prepare for college, you should consider investing in a desktop printer-scanner-copier.

d. Just remember that for formal reports you have to cite any images that you insert into your document. You don't have to cite scanned images for this exercise unless you use a source other than the textbook.

CORNELL NOTES and the 5 R's

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Recite – read your notes out loud
Reflect – and consider how this information is connected to your personal experiences and what you already know
Review – look over your notes more than once

Name:

Date:

Topic:

Questions/Key Points	**Notes**

SUMMARY:

Name _____

Date _____

CORNELL NOTES

Topic _____

Questions/key points	Notes

Summary