

AP Chemistry Summer Reading Assignments (For the 2010-2011 school year)

There is a tremendous body of research showing the students who read over the summer weeks perform better in school upon returning in the Fall. With that in mind, I recommend that students read as much as they can. I am recommending to all of the science classes the Psychology Today and Discovery magazines, as these two are some of the best when presenting scientific research and social science studies.

For the AP Classes though, it is highly important that students keep in mind the information related to the class. The AP exam is in May, which leaves us with shortened class time (in comparison to normal classes that receive final exams in June) while at the same time increasing the amount of information that we need to cover to ensure success on the exam. Keeping that in mind, I am asking the **AP Chemistry** students to do the following over the summer:

- 1) See Me (Mr. Heinemann) in room G115 before the close of this year to check out a textbook over the summer.
- 2) Read through chapters 1, 2 and 3 of the text as it will **REVIEW** many concepts covered in the Honors and Standard chemistry classes. Use the information as a review. This means you can skim through the areas where you are most comfortable, and read more carefully the areas that you are in need of review. You are reading about general chemical concepts (chapter 1), atoms and ions (chapter 2) and stoichiometry (chapter 3).
- 3) Complete the following questions by the **FIRST DAY OF CLASS**. Complete them on notebook paper.
 - a) From chapter 1: problems 1.32, 1.40, 1.50, and 1.54 from pages 32-33.
 - b) From chapter 2: problems 2.26, 2.44, 2.66, 2.70, 2.72, and 2.78 from pages 71-74.
 - c) From chapter 3: problems 3.14, 3.22, 3.34, 3.50, 3.78, 3.80, and 3.94 from pages 110-115
 - d) Answer the two conceptual questions on the back of this page.

PLEASE REMEMBER that these concepts you have already seen. There may be some challenges in the reading, but for the most part it is a review. This assignment should only take 4-6 hours of your summer time. Do not spend 10-20 hours looking at material you have already seen.

See you in August.

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Conceptual questions:

1. The early Alchemists used to do an experiment in which water was boiled for several days in a sealed glass container. Eventually, some solid residue would appear in the bottom of the flask, which was interpreted to mean that some of the water in the flask had been converted into “earth.” When Lavoisier repeated this experiment, he found that the water weighed the same before and after heating and the mass of the flask plus the solid residue equaled the original mass of the flask. Were the alchemists correct? Explain what really happened. (This experiment is described in the article by A. F. Scott in *Scientific America*, January 1984.)

2. Imagine an opaque box that is sealed on all sides but has three holes labeled A, B and C on one side. Exiting out of each hole is a length of rope. Confronted with this box, you wish to discover something about its internal workings. You have no tools and cannot open or see in the box. You pull on rope B, and it moves rather freely. When you pull on rope A, rope C appears to be pulled slightly into the box. When you pull on rope C, rope A almost disappears into the box.
 - a. Based on this description, draw a picture of the box.
 - b. Based on the observations, construct a model for the interior mechanisms in the box.
 - c. What further experiments could you do to refine your model?