

HONORS CHEMISTRY SUMMER HOMEWORK

Dear _____ ,

Congratulations on entering the Honors Chemistry Program! To get us started, you will be expected to complete the attached summer assignments by the due dates indicated.

Mrs. Joy Carter - c/o HPRHS 299 Pidgeon Hill Rd, Sussex, NJ 07461
or 61 Lowe Rd, Wantage, NJ 07461,
jcarter@hpregonal.org

If you have any questions regarding the assignments, please contact me. Please keep in mind since it is the summer, I am on vacation too, so be aware that I may not get back to you right away.

Please read the articles and answer the attached questions. Each assignment should be read entirely and questions should be answered on a separate sheet of paper (**typed**) and handed in by due dates. Assignments may be turned in early, **but no assignment will be accepted late**. Each assignment is worth **25 points** and these grades will be calculated in your first marking period grade. **DO NOT e-mail assignments**. I have had too many problems in the past with this. Both assignments may be mailed to the above address or dropped off and placed in my school mailbox.

The due dates for the two assignments are listed below:

Assignment 1 "Tale of the Tuna"	DUE Thursday, July 6 th
Assignment 2 "Fireworks"	DUE Thursday, August 3 rd

The goal of these summer assignments is to become familiar with scientific studies that are currently taking place as well as to increase your science literacy. The two assignments are topics of discussion that will take place during the course of the year.

If you have any problems with assignments, please do not hesitate to contact me. Again, I may be away, so leave yourself enough time to read assignments before they are due. Look at your vacation dates too. Make sure your assignment is **postmarked by the due date** to receive credit. Again, **no assignment will be accepted late**. I am looking forward to meeting you in September. Enjoy your summer!

Sincerely,

Mrs. Joy Carter

Assignment # 1 Tale of the Tuna

Directions: Please read the attached article(right click URL) and answer the following questions on a separate piece of paper. Be sure to type all answers and write in complete sentences.

<http://www.whoi.edu/oceanus/feature/tale-of-the-tuna>

1. Research and describe the Fukushima accident that occurred on March 11, 2011.
2. How has this radiation leakage benefitted scientists to understanding the migratory patterns of pacific Bluefin Tuna?
3. Why are the Pacific Bluefin Tuna such a commodity?
4. Should there be much concern about the radioactivity present if eating these fish?

Explain.

5. Cesium is element # 55 on the periodic table. In its natural state, it is beneficial to human beings but in its radioactive state, it poses harm. Research and describe the advantages and the disadvantages of this element. Cite your sources.

Assignment # 2 Fireworks!

Directions : Please read the following article (right click URL) and answer the attached questions on a separate sheet of paper. Be sure to type all answers and write in complete sentences.

<http://scifun.chem.wisc.edu/chemweek/fireworks/fireworks.htm>

Intro questions

1. What three forms of energy are generated during a firework?
2. How are the colors produced?
3. Which color has the longest wavelength? Shortest? Which color has the highest energy? Lowest energy?
4. What is the purpose of a "star"?
5. What is the key to fireworks success?
6. Do we hear or see the fireworks first? What is the speed of sound? Speed of light?

Chemistry

7. Explain why nitrates are used as a major component of black powder.
8. In the 1830's, Italian firework makers discovered a way to produce more intense colors. They used chlorates. From the given reaction: $2 \text{KClO}_3 \rightarrow 2 \text{KCl} + 3 \text{O}_2$
Explain why fireworks with chlorates are more intense than those with nitrates.
9. Why is perchlorate a better oxidizing agent than chlorates?
10. As you learned in Bio class, if one molecule becomes oxidized, another must be reduced. If perchlorates are oxidized, what substances become reduced?

Safety

11. What are some safety regulations for large firework displays?

Origins

12. When was gunpowder first used as a weapon?

Going Further

13. Distinguish between a firecracker and a sparkler. Be sure to include an explanation To why a firecracker explodes and a sparkler does not. Be sure to cite your source(s).