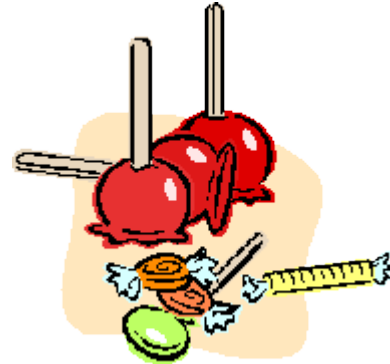


Mr. G's

"The
Chemistry
Behind
Cooking"

WebQuest



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Introduction

The talented chef Emeril Lagasse has asked you and a few of your friends to, "Bam, kick it up a notch", and to appear on his cooking show to present the background behind "The Chemistry of Cooking". Emeril will be specializing in desserts for the cooking show. In order to provide an interesting and informative show, you must research how solutions, thermochemistry, chemical reactions and the gas laws are involved in cooking. You will be creating a pamphlet to aid the people watching the show.

The Task

You will use information on solutions (concentrations, saturation, phase changes), thermochemistry, chemical reactions and the gas laws to inform your audience of the "Chemistry Behind Cooking". In order to do this you will:

- Research the following topics so that you will be able to define and describe "chemistry" terms for your audience during your explanation: solutions, thermochemistry, chemical reactions, and the gas laws.
- Be prepared to talk about the chemistry behind the making of an ice cream sundae with pressurized whipped cream and *TWO* of the following desserts: candy apples, lollipops, homemade fudge, Bananas Foster, Creme-Brulee, an apple pie, a chocolate cake, or something you choose that is approved by the teacher.
- Put together a tri-fold pamphlet (6 pages) to distribute to your audience. The pamphlet must have a title page with pictures, an introduction behind the chemistry of cooking (What chemical reactions are, the chemistry terms, as well as how they relate to cooking), and one page each on, the chemistry behind making 1) an ice cream sundae with pressurized whipped cream, 2) dessert choice #1, and 3) dessert choice #2. The final page must be a creative page that could include any information you think is relevant to cooking and chemistry, a new recipe, pictures, any extra information you could not fit in before (information from the introduction page may be continued on this extra page)

- Remember to be precise with the information, this is a pamphlet, you do not want to be too wordy and you want to contain a great deal of information.

Resources

Sites to help with Gas Laws:

- <http://dbhs.wvusd.k12.ca.us/GasLaw/KMT-Gas-Laws.html> Chem Team Web page
- <http://www.chemtutor.com/gases.htm> Chem Tutor Web page
- <http://www.chemfiesta.com/> Look for Gas Laws on Mr. Guch's Cavalcade of Chemistry
- Your notes from class on the gas laws

Sites to help with Solutions info:

- <http://www.sugar.org/kitchen/candy.html>

Sites to help with Thermochemistry of Ice Cream:

- <http://www.polsci.wvu.edu/Henry/Icecream/Icecream.html>

Sites to help with Chemical Reactions:

- <http://www.chefrick.com/html/article1.html>
- <http://www.bbc.co.uk/science/hottopics/cooking/chemistry.shtml>
- <http://www.ktca.org/newtons/newtonsclassics/classic8.html>
- <http://www.montshire.net/minute/mm990823.html>
- <http://www.post-gazette.com/food/20001116fuller5.asp>

The Process

1. Working by yourself, take a look at the provided web sites to get some basic information on how the following aspects of chemistry (chemical reactions, thermochemistry, solutions, and the gas laws) are related to cooking. Also, look at the web pages and your notes to make the connections with the terms.

2. Start putting your pamphlet together. Remember that you need the following pages:
 - title with pictures
 - an introduction to the Cooking Behind Chemistry page
 - one page each for the chemistry behind making 1) an ice cream sundae with pressurized whipped cream, 2) dessert choice #1, and 3) dessert choice #2.
 - one page that is up to you (this is your chance to be creative or give extra information)
3. Make sure that you give credit to any web page or book author whose information you used in your pamphlet. You may also use pictures from the web, but once again, you must give credit.

Do Not Plagiarize!!!
4. Turn in your pamphlet ON TIME!

Learning Advice

1. Get your **background information first** before you start putting your pamphlet together. Research your information first, understand the terms, use your book, use the internet, this will help you with your project as well as with your future class work/ tests.
2. Keep your data organized.
3. Do not miss class during this project!
4. You have almost 4 days to work on this in class, use your time wisely. You should have as much information as possible and this should be done neatly, creatively and it should not be plagiarized.
5. This will be graded knowing that you had a great deal of class time to work on this so the expectations will be high!
6. **Your time spent at the computer lab will be factored into your grade, use it wisely to achieve easy points for your project!**
7. Have fun.

Conclusion

Follow the rubric to ensure the best possible grade as well as turn it in by the deadline and it will be graded by the following rubric:

Grade:	Requirements:
A	Neatly typed, organized. It is apparent that the student has researched their topic. All five required pages are present, 6th page shows creativity and/or extra interesting information. Information on the thermochemistry of ice-cream, how gas laws are related to the pressurization of whipped cream, and how solutions are involved in cooking is accurate, appropriate, and complete. Highlights main points without excessive wordiness. Used time in the computer labs effectively.
B	Neatly typed, organized. The student did research before starting pamphlet. All five required pages are present, 6th page shows only some creativity and/or extra interesting information. Information on the thermochemistry of ice-cream, how gas laws are related to the pressurization of whipped cream, and how solutions are involved in cooking is accurate, appropriate, and complete. Used computer lab time well.
C	Neatly typed, organized. Little research was done before beginning pamphlet. At least five of the 6 pages are present. Information on the thermochemistry of ice-cream, how gas laws are related to the pressurization of whipped cream, and how solutions are involved in cooking is accurate, appropriate, and complete. Was on task at the computer lab most of the time.
D	Neatly typed or handwritten, somewhat organized. Little to no research before creating pamphlet. At least four of the 6 pages

	are present. Information on the thermochemistry of ice-cream, how gas laws are related to the pressurization of whipped cream, and how solutions are involved in cooking is mostly accurate, appropriate, and complete. Has a hard time staying on task at the computer lab.
F	Typed or handwritten, lack of organization. No research for pamphlet was done. Only three of the 6 pages are present, Information on the thermochemistry of ice-cream, how gas laws are related to the pressurization of whipped cream, and how solutions are involved in cooking is lacking in accuracy, appropriateness, and completeness. Could not stay on task at the computer lab.

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Pictures courtesy of Google Images.

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