



Food Science

Science Olympiad Coaches Institute 2012

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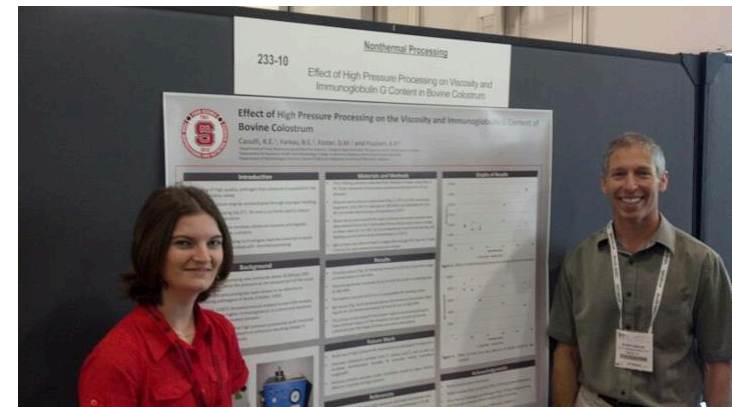
North Carolina State University

Department of Food, Bioprocessing and Nutrition Sciences



About Me

- Been involved with Science Olympiad since 2003
- Junior in food science at NCSU (Science Olympiad helped influence my choice of major!)
- Currently researching food process engineering (interests include heat transfer and fluid flow)





What is Food Science?

- Food science is essentially the study of all the elements that go into production of food
- Common misconceptions
 - We are not chefs; chefs make single dishes, food scientists produce on a much larger scale
 - We are not nutritionists; nutritionists study food when it is inside the body, food scientists are concerned more with what is outside the body



More specifically...

- Food science takes a multi-disciplinary approach to producing food
- Chemistry, physics, microbiology, and engineering all affect properties of food and food production
- For example, modeling a cooking process can be done by any engineer, but it requires knowledge of chemistry (how foods will react during the process) and microbiology (when a food is safe to eat)



The Event

- 50 minutes
- Make and bring a viscosity testing device
- You may also bring a stand and a timer to the event
- Other resources: Calculator and a 3-ring binder of any size
- Goggles and aprons/lab coats are required



Test Format

- Test will be multiple choice, fill in the blank, and short answer.
- The test will take a focus on the multidisciplinary nature of food science.
- There will be some challenge questions. These are intended to get students thinking about food science and to help those that really “get it” to stand out.



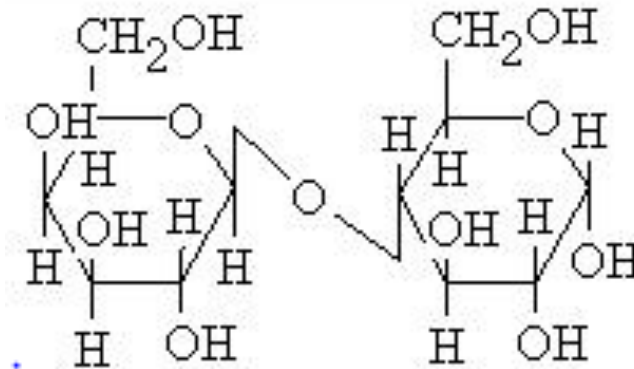
Test Format

- Most of the questions will come from chemistry topics
- Other questions will draw from knowledge of other disciplines as they relate to baking



Example Question

- What sugars make up a lactose molecule?
(Shown Below)





Example Question

- Ben and Mike were making pancakes. Ben followed the recipe exactly, but Mike doubled the sugar for his batch. Both cooked the pancakes under the same conditions. Circle the picture of Mike's pancakes.





Resources

- Check your local high schools for a food preparation textbook. If they have a foods class, they should have one. Alternatively, your local library may also have one.
- Google. Be wary of some of the information on the internet—I have found that it isn't always true.
- Experimentation. Try some simple cooking experiments. Also practice using the reagents and be familiar with positive and negative reactions and what they mean.



Questions???



Make your own viscometer!

- Poke a hole in the bottom of the cup provided.
- Place tape over the hole.
- Fill cup with pre-measured container of water.
- Pull tape off and start measuring time.
- Stop the time when the stream breaks.
- Repeat the experiment with milk and compare results.