

Study Suggestions for Food Science B 2012 San Diego County Regional Competition

1. **Resources:** There are lots of sites on the internet that have good information. Be sure that the source is a reliable one.

One good site is <http://www.sciencenc.com/event-help/foodscience.php>

You will find many others such as:

<http://chemistry.about.com/cs/foodchemistry/f/blbaking.htm>

<http://www.wellsphere.com/healthy-cooking-article/butter-vs-shortening-in-baking/156136>

Books: The guru of food chemistry is Shirley Corriher.

<http://www.amazon.com/BakeWise-Successful-Baking-Magnificent-Recipes/dp/1416560785>

You can watch a short video of Shirley discussing food chemistry. Two other authors are Harold McGee and Joseph Amendola. However, you do not need to buy a book. The internet has an enormous amount of information.

2. There will be 4 or 5 **stations** for this event. Each team will do all of the stations. Each station will have a wet lab, a hands-on question (the event captain will bake something, have batter or some other example), and written questions. If there are 4 stations, each station will last 10 minutes. If there are 5 stations, each station will last 8-9 minutes.

3. The students should know about the **reactions between reagents and foods**: they should know what the reactions produce and what conclusions they can reach. There are tests with lab chemicals and tests with water and vinegar, for instance.

4. They should also be able to recognize the **chemical structures** of fats (saturated and unsaturated), sugars (mono, di-saccharides and artificial sugars), proteins and carbohydrates. If they are given a picture of a structure, they should be able to identify its food group. They will not be asked to draw any structures.

5. **The viscosity meter.** See the videos on <http://www.sciencenc.com/event-help/foodscience.php> for suggestions on making the meters. Note how long the nail is heated in the flame. Unlike the demonstration, students should wear oven mitts when they hold the nails in the flame. Our event captain suggests a COMMON 16d nail. She says that finishing nails and roofing nails are not the correct diameters.

6. Substitutions: Students should know what happens to baked products when substitutions are made. See 3.a. for the Approved List of Ingredients. (3.a.iv. applies only to the National Competition.)

What happens to your cookies, pancakes, bread or biscuits if you use oil or margarine or butter or shortening to make them?

What happens to your baked product if you vary the leavening agent, the amount of the leavening agent, or if you omit it?

What are the consequences of substituting different milk products?

What happens when you substitute different sugars or artificial sugars?

7. There will be baked products or batters. Students will be asked to identify the processes that have produced them such as the substitution of ingredients.

8. Nutritional Value: Students should be able to read food labels and understand them. They should be able read the number of servings for a package of food and to calculate how many grams of fat are in each serving. Tests of Food Science from several years ago have many questions on this topic.

An example: If you made a box of macaroni and cheese and ate the whole thing, how many grams of fat did you just eat?

A small bag of chips may be labeled as having 2 servings on the bag, but who could stop at half a bag? Some tall drink cans claim that they contain 3 servings. Think of the amount of sugar one gets in drinking the entire contents of the .an