

Food Science
Wright State Invitational
January 28, 2012

Name _____

Name _____

School _____

Team Number _____

Please reset each station just like you found it!

Pay special attention to notes on answer sheet regarding details of stations.

Do not eat the baked goods! (Some of them are pretty bad anyway)

Yes, you may take anything apart that is stapled together, but you must put your name on every sheet, and you must staple it all back together again.

Good luck!

BONUS!

Work on this part at any time during the test

Station 1

Welcome to the EZ-Bake Bake Off!

We will be creating a recipe for cupcakes scaled to an EZ-Bake oven. In your bin you will find all the ingredients necessary to make a single cupcake. Using only those ingredients, list how much of each you would use to create a single EZ Bake sized cake. An EZ Bake pan holds about 4 fluid ounces. That converts to about 110 ml or 115 -120 grams of cake batter. That is the same capacity as a single cupcake liner or 1/24th of a cake recipe.

Hints:

1 cup oil = 200g

1 cup buttermilk = 240 g

1 cup water =235 g

1 egg= 50g

1 cup of flour =125g

1tsp dry ingredient =5 g

1 cup of sugar =200g

1Tbsp dry ingredient =15g

If your math calls for an amount less than 1 gram, round up to 1 gram for ease of measurement. When in doubt, approximate.

Use the following template to create your recipe

Amount	Ingredient	Purpose

Procedure:

Station 2

Now that you've designed your recipe, make it. Use the standard cupcake liner and the bowl and spatula in your box to assemble your cupcake. Take it to the oven that matches your odd or even team designation, and clean up your area.

1) What is the first step when cooking? _____

2) How do serious bakers measure their flour? _____

3) Why do they measure it this way? _____

4) If you could add or substitute one ingredient from the approved list to your recipe, what would it be, and why? _____

Station 3

Match the cupcake to its missing ingredient

Baking Soda	
Eggs	
Flour	
Butter	
Sugar	

Station 4

Letter

2% Milk	
Artificial Sweetener	
Baking Chocolate	
Baking Powder	
Baking Soda	
Brioche Recipe	
Butter	
Buttermilk	
Cake Flour	
Challah (Egg Bread) Recipe	
Chocolate Chips	
Coconut Milk	
Cookie Recipe	
Croissant Recipe	
Cupcake Recipe	
Custard Recipe	
Egg Beaters	
Margarine	
Vanilla Extract	
White All Purpose Flour	
White Bread Recipe	

Station 5

Using the available equipment, calculate the density of the following ingredients.

Sugar	
Brown Sugar	

Station 6

During this station, go get your cupcake and answer the following questions:

Just for your own records, Rate your cupcake on a scale of 1 to 10 for each characteristic

- 1) Size _____
- 2) Shape _____
- 3) Browning _____
- 4) Aroma _____
- 5) Overall _____

6) What changes would you make to improve your cupcake?

7) Judges' cupcake rating _____

Station 7

Viscosity

1) Using your viscosity meter and standard curve, determine the approximate viscosity of this substance _____

2) How is viscosity different from density? _____

3) As the temperature of a liquid increases, the viscosity of that liquid generally _____.

4) What is an exception to 3 _____

4) At what temperature did you create your standard curve? _____

5) I brought these samples of vanilla in from the trunk of my car at 8am. The temperature was about 40 F. This room is approximately 80 F. How could that have created errors in your data? _____

Station 8

White Powder ID

Using the information available and physical characteristics for each substance, match the white powder to the name below. If you could do a test to be certain of your answer, what would it be? (Taste is not an acceptable test)

Substance	Letter	Definitive test
White flour		
Powdered sugar		
Baking Soda		
Baking Powder		
Granulated Sugar		
Salt		
Dried Milk		

Station 9

- | | | |
|----------|----------|----------|
| 1 _____ | 11 _____ | 21 _____ |
| 2 _____ | 12 _____ | 22 _____ |
| 3 _____ | 13 _____ | 23 _____ |
| 4 _____ | 14 _____ | 24 _____ |
| 5 _____ | 15 _____ | 25 _____ |
| 6 _____ | 16 _____ | 26 _____ |
| 7 _____ | 17 _____ | 27 _____ |
| 8 _____ | 18 _____ | 28 _____ |
| 9 _____ | 19 _____ | 29 _____ |
| 10 _____ | 20 _____ | 30 _____ |