



## SfS Away from the Classroom!

### C10: Vitamin C Experiment (Recommended for Grades 6-8)

**Please use the following resources to learn about chemical reactions!**

**Watch these Videos:**

[Chemical Changes: Crash Course Kids #19.2](#) and [The chemistry of cookies - Stephanie Warren](#)

**Answer these questions:**

- What is a chemical change/reaction?
- What evidence should we look for to figure out if a chemical change/reaction happened?
- Can you list the chemical reactions that happen when you bake cookies?

**Activity:** Follow these directions to make chocolate chip cookies, comparing the effect of white and brown sugar on the chemical reactions inside baking cookies.

You will need:

<ul style="list-style-type: none"><li>• 2 1/4 cups all-purpose flour</li><li>• 1 teaspoon baking soda</li><li>• 1 teaspoon salt</li><li>• 1 cup (2 sticks) butter, softened</li></ul>	<ul style="list-style-type: none"><li>• 3/4 cup granulated sugar</li><li>• 3/4 cup packed brown sugar</li><li>• 1 teaspoon vanilla extract</li><li>• 2 large eggs</li></ul>	<ul style="list-style-type: none"><li>• 2 cups (12-ounce package) chocolate chips</li><li>• 2 small bowls</li><li>• 2 medium bowls</li><li>• cookie sheet</li><li>• Oven</li></ul>
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1. Preheat your oven to 375° F.
2. In 1 small bowl add 1 and 1/8 cup of flour, 1/2 tsp of baking soda and 1/2 tsp of salt. Add the same ingredients to the other small bowl.
3. In 1 medium bowl beat together 1 cup of butter, 3/4 a cup of white sugar and 1/2 tsp of vanilla extract.
4. In the second medium bowl beat together: 1 cup of butter, 3/4 cup of brown sugar and 1/2 tsp of vanilla extract.
5. Add an egg to each medium bowl, beating well after adding.
6. Into each of the medium bowls, gradually beat in the ingredients of a small bowl.
7. Stir in 1 cup of chocolate chips to each medium bowl.
8. Drop by rounded tablespoon onto ungreased baking sheets.
  - a. Make sure to keep the two types of cookies separate.
9. Bake for 9 mins.
10. Remove from the oven and allow to cool.
11. Compare cookies made with each type of sugar. What did changing the sugar we used change about the chemical reactions in cookies?



## **Make observations & use Claims, Evidence, and Reasoning!**

1. **Claim:** Energy is required to start the chemical reactions needed to make cookies.
  - **Evidence:**
  
  - **Reasoning:**
  
2. **Claim:** Bakers in a kitchen and scientists in a laboratory do a lot of the same things.
  - **Evidence:**
  
  - **Reasoning:**