



Daily Dose of Science Challenge: Cookie Chemistry

Question: What happens when I change the amounts of an ingredient in a cookie recipe?

Background: “Cooking is an art, baking is a science.” Ingredients in baked goods have important roles to play in how your treat will turn out.

Activity:

Suggested materials:

- 1 3/4 cups (210 g) all-purpose flour
- 1/2 teaspoon baking soda
- 1/2 teaspoon kosher salt
- 1/2 cup (113 g) butter
- 1/2 cup (99 g) granulated sugar
- 1/4 cup (54 g) brown sugar packed
- 2 teaspoons vanilla extract
- 1 large egg
- 1 cup (170 g) semisweet chocolate chips

You can make any cookie recipe you want, this is the one I used. You’ll be making the recipe twice, so make sure you have enough ingredients for that.

Vocabulary to incorporate into this lesson:

- Leavening agent
- Emulsion

Procedure:

1. Make cookies as instructed (<https://www.reciperecipes.com/2019/05/easiest-chocolate-chip-cookie-recipe.html?m=1>)
2. Pick one ingredient mentioned in the Daily Dose of Science video to change the quantity of.
3. Make a hypothesis about what will happen when you add more or less of that ingredient (you can decide if you want to add more or less).
4. Make the cookies again, with the change in the one ingredient.
5. Compare the two batches of cookies.

Explain:

Was your hypothesis correct? How did your cookies change from the first batch to the second? Think about how you like your cookies (soft, crunchy, gooey, etc.). How do you think you could change the recipe to get your desired cookie?

Extension

What happens to your cookies if you change the oven temperature? The baking time?

Try to make your cookies gluten free. Are you able to do a 1:1 substitution with all purpose flour for your gluten-free flour? What else do you think you’ll need to change? Why do you think this is?





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Remember, good science means you need to be able to repeat your results, so make sure you're writing down what you try so you can do it again later!

Connect with us:

Share your cookie experiments! Let us know what you changed and if your hypothesis was correct.

Additional resources:

<https://www.youtube.com/watch?v=n6wpNhyreDE&feature=youtu.be>

<https://www.sciencenewsforstudents.org/article/bake-your-way-your-next-science-project>

<https://www.youtube.com/watch?v=3b4shT7EBZQ>

