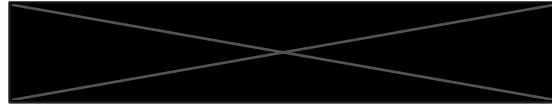


The Great Brownie Debate



Introduction

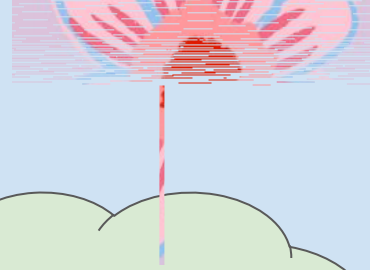
My project is can students taste the difference between brownies made from scratch and from a box. The problem in this experiment is can students taste the difference between brownies made from scratch and box brownies. My hypothesis is that if middle school students taste homemade brownies and box brownies, then they will be able to taste the difference because the flavor of the homemade brownies made with fresher ingredients will be stronger. This topic is important because a lot of people have busy schedules and sometimes want a sweet snack and by doing this project I can see if making homemade brownies are worth the time. If you do decide to make homemade brownies and don't have all the ingredients you'll spend more money than buying a box mix that isn't expensive. Lastly this project is important because if you bake one but you don't like the taste or the outcome this will help save time and money.

Statement of the Problem

The problem in this experiment is can students taste the difference between brownies made from scratch and box brownies. The purpose in this experiment is to see if students can taste the difference between brownies made from scratch and from a box. I want to do the experiment because I want to know if homemade brownies are worth the time to make. I think the information gained from this experiment will help people decide if homemade brownies are worth the time to make.

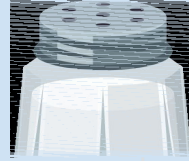
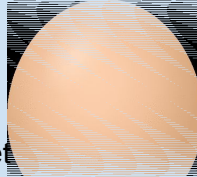
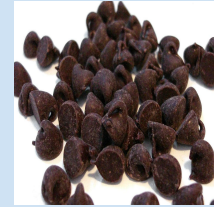
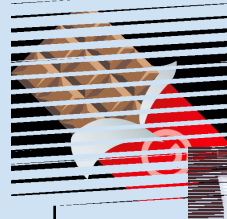
Hypothesis

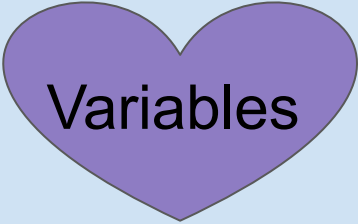
If middle school students taste homemade brownies and box brownies, then they will be able to taste the difference because the flavor of the homemade brownies made with fresher ingredients will be stronger.



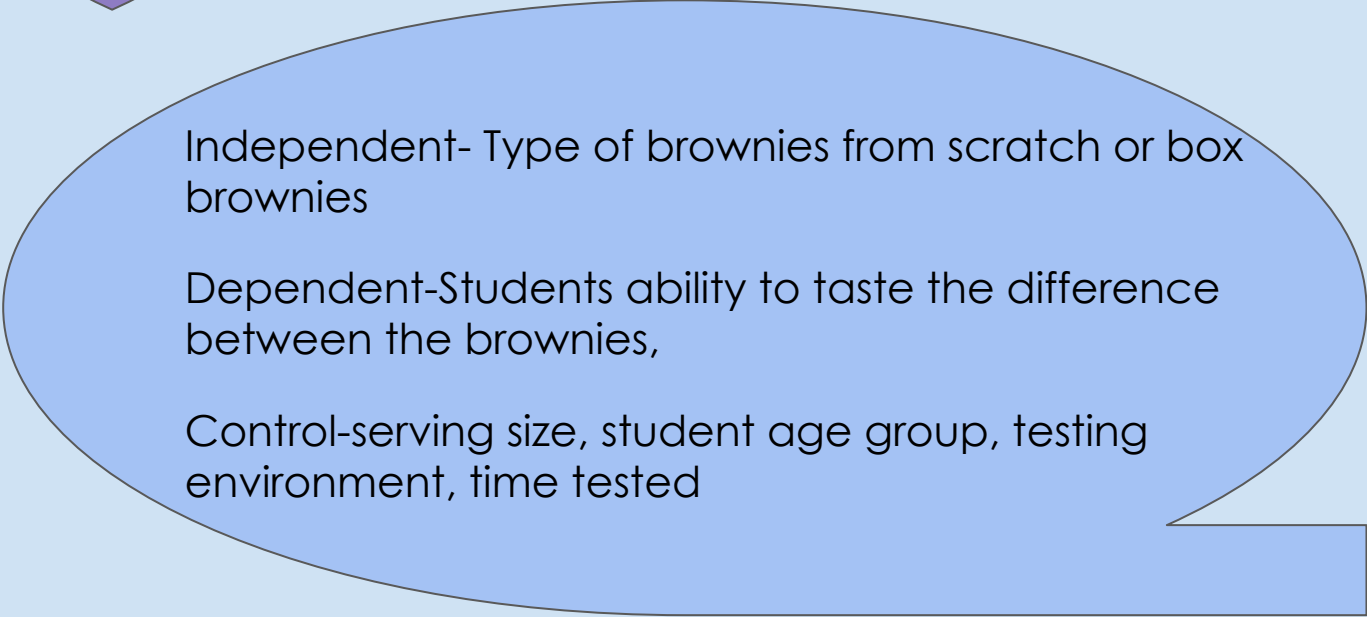
Materials

3/4 cup unsalted butter
4-ounce semi-sweet chocolate bar,
2 cups granulated sugar*
3 large eggs, at room temperature
2 teaspoons pure vanilla extract
1 cup unsweetened natural or
dutch-process cocoa powder*
1 cup all-purpose flour
1 teaspoon salt
Light brown sugar
optional: 1 and 1/4 cups semi-sweet
chocolate chips
Mixing bowls
Box brownie mix
GE Oven
9x13 inch pan
Measuring cups
31 students





Variables



Independent- Type of brownies from scratch or box brownies

Dependent-Students ability to taste the difference between the brownies,

Control-serving size, student age group, testing environment, time tested

Procedures

1. Gather all materials
2. Preheat oven to 350 F and line a 9×9 baking pan with parchment paper
3. Combine butter and chopped chocolate in a large bowl.
4. 12 Tablespoons unsalted butter, 4 oz semi sweet chocolate bar
5. Microwave in 25-second intervals, stirring well in between, until completely melted and smooth.
6. Immediately add cocoa powder and instant coffee stir well.
7. $\frac{1}{2}$ cup natural cocoa powder, $\frac{1}{2}$ teaspoon instant coffee grounds
8. In a separate, medium-sized mixing bowl, combine sugars and eggs. Whisk vigorously, until well combined and lightened in color
9. $\frac{3}{4}$ cup granulated sugar, $\frac{3}{4}$ cup light brown sugar, 2 large eggs + 1 large egg yolk
10. Stir in vanilla extract and salt.
11. 1 teaspoon vanilla extract, $\frac{1}{2}$ teaspoon salt
12. Drizzle chocolate mixture into egg mixture and stir until completely combined.
13. Add flour, stir until completely combined.
14. 1 cup all-purpose flour
15. Stir in chocolate chips.
16. $\frac{3}{4}$ cup semisweet chocolate chips
17. Spread into a prepared 9×9 pan.
18. Bake in the center rack of a 350 degree fahrenheit oven for 30-35 minutes or until a toothpick inserted in the center comes out slightly fudgy, but not wet with batter.
19. Allow to cool before cutting and serving
20. Put the brownies into a plastic ziploc bag.
21. Get the box mix
22. Follow the procedures on the back of the box.
23. After the both brownies have cooled cut the brownies and place them into ziploc bags

Results and Data

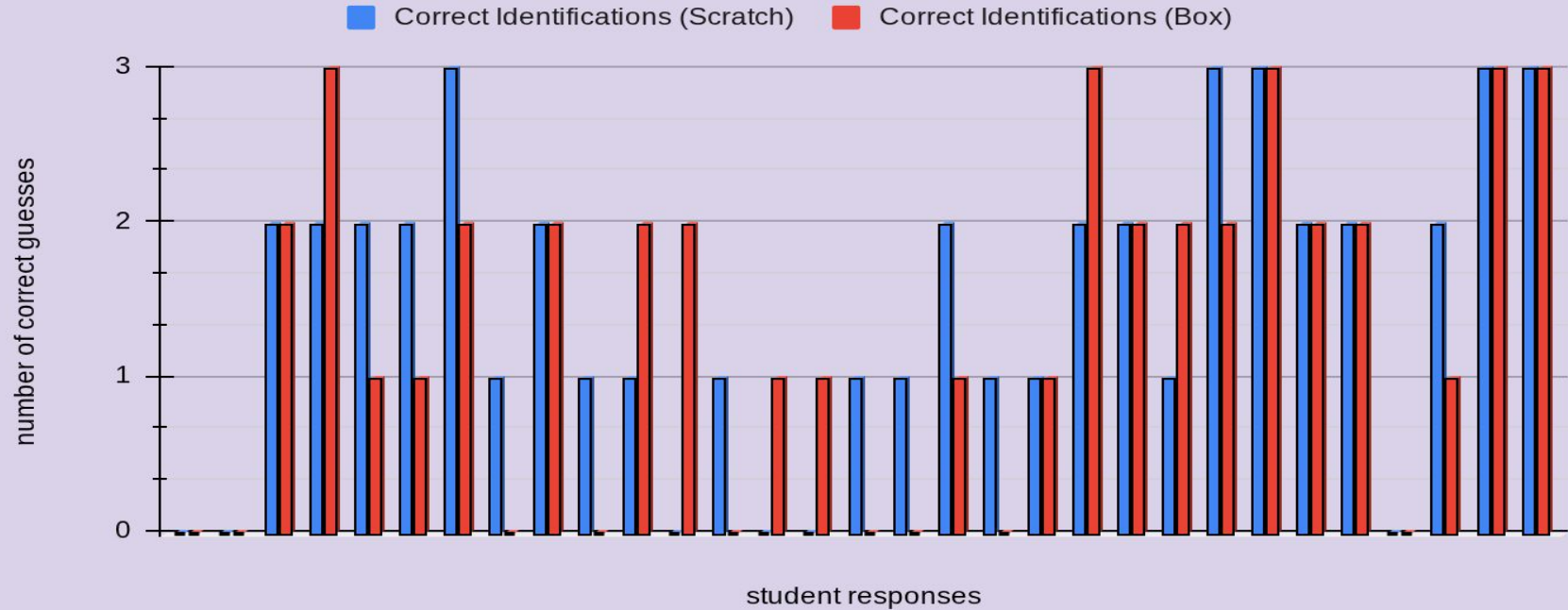
This project helped determine the difference between the two types of brownies. On the first and second trial they did not get any correctly. The third trial guessed two of the box brownies correctly and two of the homemade brownies correctly. The fourth trial they guessed two from scratch correct and 1 from the box correct. In the fifth trial they guessed two scratches correctly and one box correctly. On the sixth trial they guessed two scratches and 1 box. On the seventh trial they guessed all their scratches and 2 boxes. On the eighth trial they guessed one scratch brownie correctly. On the ninth trial they guessed two scratches and two boxes correctly. On the tenth trial they guessed one scratch correctly. On the 11th trial they guessed one scratch and 2 boxes. On the 12th trial they guessed 2 box brownies correctly. On the 13th trial they guessed one scratch correctly. The 14th trial guessed one box correctly. The 15th trial guessed one box brownie correctly. On the 16th trial they guessed one scratch cookie correctly. The seventeenth trial guessed one scratch brownie correctly. The 18th trial they guessed two scratch and one box brownie correctly. The 19th trial guessed one scratch brownie correctly. The 20th trial guessed 1 scratch and 1 box brownie correctly. On the 21st trial guessed 2 scratch brownies and all three box brownies correctly. The 22nd trial guessed 2 scratch brownies and 2 box brownies correctly. On the 23rd trial they guessed 1 scratch and 2 box brownies correctly. The 24th trial guessed 3 scratch brownies correctly and 2 box brownies correctly. On the 25th trial they guessed all 6 brownies correctly. On the 26th trial they guessed 2 scratch and 2 box brownies correctly. The 27th trial guessed 2 scratch and 2 box brownies correctly. The 28th trial guessed 0 correctly. The 29th trial guessed 2 scratch and 1 box brownies correctly. The 30th and 31st trials guessed all of them correctly. Overall only 3 people could guess all three correctly. There were 3 box brownies and 3 from scratch, many guessed more than 3 on them. Many people couldn't tell the difference so whichever is easiest for you they will still enjoy them if they're from scratch or homemade.

Results: Data Table

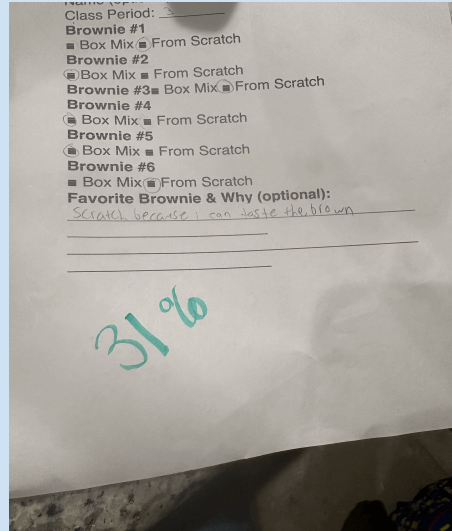
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Results: Data Graph

The Great brownie debate



Photographs of Project:



Conclusion

My hypothesis contradicted my experiment. I did accomplish my objective and my experiment was successful because I was able to figure out if students can tell the difference between homemade and box brownies. My results proved that students cannot tell the difference between homemade and box brownies. I learned that students cannot tell the difference and they will like whatever you make. If I did this experiment again I would do different age groups to see if they can tell the difference.

Implications and Ideas for Future Research...

The results of this experiment contradicted the hypothesis, revealing that the data did not support the original prediction. This experiment was successful because all 31 students put down their honest opinion. It was also successful because I figured out which brownie tasted better and if they could tell the difference. The results proved that students could not tell the difference between homemade brownies and box brownies. If I did this experiment again I would use more students and use different brands of box brownies. To make it more precise I would have them try multiple brands and multiple homemade brownies. This experiment was successful.

References

Teaspoon, T. (2019, March 20th). Homemade Brownies or Brownie Mix - What's Your Vote?

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<https://sallysbakingaddiction.com/seriously-fudgy-homemade-brownies/comment-page-13/>

Merrit, S. (2025, September 9th). Fudgy Homemade Brownies from Scratch

<https://sugarspunrun.com/brownies-from-scratch/>

Variables

- Independent- Type of brownies from scratch or box brownies
- Dependent-Students ability to taste the difference between the brownies,
- Control-serving size, student age group, testing environment, time tested

The great brownie debate

Objective

In this experiment I will be testing to see if middle school students can taste the difference between homemade and box brownies.

Materials

3/4 cup unsalted butter
4-ounce semi-sweet chocolate bar, coarsely chopped and divided
2 cups granulated sugar*
3 large eggs, at room temperature
2 teaspoons pure vanilla extract
1 cup unsweetened natural or dutch-process cocoa powder*
1 cup all-purpose flour
1 teaspoon salt
Light brown sugar
optional: 1 and 1/4 cups semi-sweet chocolate chips
Mixing bowls
Box brownie mix
GE Oven
9x13 inch pan
Measuring cups
31 students

Statement of the Problem

The problem in this experiment is can students taste the difference between brownies made from scratch and box brownies. The purpose in this experiment is to see if students can taste the difference between brownies made from scratch and from a box. I want to do the experiment because I want to know if homemade brownies are worth the time to make. I think the information gained from this experiment will help people decide if homemade brownies are worth the time to make

Conclusion

My hypothesis contradicted my experiment. I did accomplish my objective and my experiment was successful because I was able to figure out if students can tell the difference between homemade and box brownies. My results proved that students cannot tell the difference between homemade and box brownies. I learned that students cannot tell the difference and they will like whatever you make. If I did this experiment again I would do different age groups to see if they can tell the difference.

Results

- My results show that students cannot tell the difference. Only 3 people could tell the difference between the brownies. A lot of the students said the softer brownies were homemade and the more stiff ones were boxed. The box ones crumbled really easily but the homemade ones stayed together.

Procedures

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2. Preheat oven to 350 F and line a 9x9 baking pan with parchment paper
3. Combine butter and chopped chocolate in a large bowl.
4. 12 Tablespoons unsalted butter, 4 oz semi sweet chocolate bar
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12. Drizzle chocolate mixture into egg mixture and stir until completely combined.
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Hypothesis

If middle school students taste homemade brownies and box brownies, then they will be able to taste the difference because the flavor of the homemade brownies made with fresher ingredients will be stronger.