

Cookie Lab Results Chart

Record results: Place an X where you would best describe the cookie.

	Chewiest	Chewy	Soft/Puffy	Soft	Thin/Crisp	Crispest
Team 1						
Control cookie _____						
Team 2:						
Shortening _____						
Team 3:						
Cake flour _____						
Team 4:						
Oil for part of butter _____						
Team 5:						
Less egg/milk _____						
Team 6:						
Melted butter _____						
Team 7:						
Bread flour/ egg yolk + milk _____						

Compare the results to your hypothesis ideas with the actual results in a verbal or written discussion.

First Experience: Low-Fat Spice Snack Cake



For Teacher:

Before you begin, hand out the following terms to students and have them hold a Sweet Tea Party (See Appendix/Tea Party) OR describe and use each term in a descriptive sentence, story or paragraph.

Crystals	Tenderizes	Low-fat
Flavor	Yeast food	Caramelization
Powdered sugar	Attract moisture	Aeration
Stabilizer	Drizzle	Spread
Creaming	Maillard reactions	Dark corn syrup

Supplies Needed: For each recipe prepared or each team provide:

For Comparison: One package Spice Snack Cake mix (9X9-in) with price

Nutrition Facts Label from ready-to-spread frosting

In this lab students will:

1. Confirm knowledge on the function of sugars in baking.
2. Apply the use of two sugars, granulated and dark corn syrup, to produce a cake suitable for breakfast, coffee or tea, or snacking.
3. Create a more tender product by blending wheat flour and corn starch to reduce the gluten strength in the flour.
4. Learn and apply the Food and Drug Administration's definition of low-fat and reduced-fat used for product labeling.
5. Create a drizzle and apply it as a simple glaze effect that has fewer calories than a fully frosted cake.



New Resource
from the
Home Baking
Association

Today's "low-fat" is called Smart Snack baking!
Go-to recipes for in-school culinary Bake
Sales, HomeBaking.org/PDF/smart_snacks_bakersdozen.pdf

Low-Fat Spice Snack Cake

Yield: 16, 1.6oz/45g servings Preparation Time: 10 minutes Baking Time: 25-30 minutes

Pan: 9-inch square baking pan

Ingredients

	Measurement	Weight
Whole white wheat flour*	½ cup	2 oz/57g
All-purpose flour*	½ cup	2 oz/57g
Corn starch	¼ cup	1 oz/28g
Baking powder	1 teaspoon	0.12 oz/3.5g
Baking soda	¼ teaspoon	0.17 oz/5g
Salt	½ teaspoon	0.1 oz/3g
Ground cinnamon	½ teaspoon	0.04 oz/1.2g
Ground ginger	¼ teaspoon	0.02 oz/0.6g
Ground nutmeg	⅛ teaspoon	Pinch
Butter, melted	3 tablespoons	1.5 oz/43g
Granulated sugar	⅔ cup	4.7 oz/135g
Low-fat buttermilk**	½ cup	4 oz/115g
Large eggs**	2	3.33 oz/95g
Dark corn syrup	¼ cup	2.75 oz/78g
Vanilla extract	1 teaspoon	0.16 oz/4.7g
Powdered sugar, optional	Garnishing	

*Or, 1 cup all-purpose Ultragrain® flour

**OR, whisk to combine 2 teaspoons vinegar and milk to measure ½ cup;

allow to stand 5 minutes to sour

Value-added Option: Toss 1 cup (5.25 oz) loosely packed moistened raisins with the flour mixture just before adding to the buttermilk mixture. (Moisten raisins by covering raisins with cold water for 5 minutes, draining, and sealing in plastic bag or container until use. Refrigerate raisins after moistening.)

Directions:

1. Preheat oven to 350° F. Grease one 9-inch square baking pan.
2. In a small bowl, combine flour, corn starch, baking powder, baking soda, salt, cinnamon, ginger and nutmeg in a small bowl; set aside.
3. In a large bowl, whisk the butter, sugar, buttermilk, eggs, corn syrup and vanilla.
4. Gradually stir in flour mixture (and raisins, if adding) until smooth.
5. Pour into the greased 9-inch square baking pan. Bake 25 to 30 minutes or until toothpick inserted in center comes out clean. Cool in pan on wire rack.
6. Sprinkle with powdered sugar, if desired, or drizzle.

Source: Recipes courtesy Karo Syrup, karosyrup.com

Low-Fat Spice Snack Cake

Nutrition Facts

Serving Size (45g)	
Servings Per Container	
Amount Per Serving	
Calories 130	Calories from Fat 25
% Daily Value*	
Total Fat 3g	5%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 35mg	12%
Sodium 160mg	7%
Total Carbohydrate 24g	8%
Dietary Fiber 1g	4%
Sugars 14g	
Protein 2g	
Vitamin A 2%	• Vitamin C 0%
Calcium 2%	• Iron 2%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300 mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
	Fat 9 • Carbohydrate 4 • Protein 4

Drizzle

Nutrition Facts

Serving Size (5g)	
Servings Per Container	
Amount Per Serving	
Calories 15	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 4g	1%
Dietary Fiber 0g	0%
Sugars 4g	
Protein 0g	
Vitamin A 0%	• Vitamin C 0%
Calcium 0%	• Iron 0%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300 mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
	Fat 9 • Carbohydrate 4 • Protein 4

Confectioners Drizzle:

- ½ cup (2 oz/56g) powdered sugar
- 1 to 2 teaspoons milk
- ½ teaspoon vanilla extract

Stir until smooth; drizzle from a pointed spoon over the cooled cake.

Critical Thinking:

1. Did the granulated sugar aerate the batter in this recipe? (A: No; the butter was melted, not creamed.)
2. What function does the dark corn syrup have? (A: Added caramel color and flavor; moistness.)
3. Why is powdered sugar used instead of granulated sugar in the drizzle? (A: for smooth—not gritty—texture; so it will flow.)
4. If “reduced fat” means the product contains “50% or less of the usual amount of fat” in this type of cake, how much fat might a normal spice cake contain? (A: 6 to 8 tablespoons/3-4 oz)
5. The drizzle recipe for one, 9-inch cake has 15 calories per slice of cake. Compare to using 1/16 of a container of frosting.
6. Sample and use *A Matter of Taste* forms to critique snack cake. Discuss if changes are needed, what?
7. When would you eat a piece of this cake? (A: It is similar to a muffin, so could be enjoyed with milk and fruit for a grab-n-go breakfast; with a milk, tea or coffee break, or as a light dessert.)

Intermediate Experience: Quilt Cake

American folk art includes many shapes and colors to create quilt patterns. Quilts were a way to make “something out of nothing” using leftover scraps of fabric to create a beautiful pattern.



In this lab students will:

1. Explore the connections between creating your own Quilt Cake, the making of quilts in early American history and current resource-conserving consumer practices like DIY baking and buying locally..
2. Apply the functions of sugar in creaming, aeration, tenderizing and decoration.
3. Employ knowledge of the color wheel and design principals in designing a Quilt Cake, use “scraps” of fruit, chips, colored sugars, candies.
4. Calculate costs and compare the value of preparing their own decorated cake with purchasing a RTE (ready-to-eat) product from a local store.
5. Organize a meeting with, or have a speaker from a local Quilt Shop or Guild, historical museum or artist to learn more about quilt design, history; while you enjoy the quilt cakes they designed.

Before you start:

- Consider these visual options:
- View the DIY Baking Channel how-to video, the Nine Patch Quilt Cake at HomeBaking.org.
 - Review how to cream butter and sugar until light and fluffy, dominosugar.com/baking-tips-how-tos/creaming-butter-and-sugar
 - Early childhood literacy and art: Assign students to prepare short children’s book reviews to share with the class to learn more about quilts. Titles to consider:

“*The Patchwork Quilt*” by Valerie Flourney.

“*The Quilt Story*” by Tony Johnston and illustrated by Tomie dePaola

“*Sam Johnson and the Blue Ribbon Quilt*” by Lisa Campbell Ernst

“*Sweet Clara and the Freedom Quilt*” by Deborah Hopkinson

“*The Boy and the Quilt*” by Shirley Kurtz

“*Eight Hands Around – A Patchwork Alphabet*” by Ann Whitford Paul

“*Tar Beach*” by Faith Ringgold

“*The Keeping Quilt*” by Patricia Polacco (a wedding Huppah quilt)

“*The Quiltmaker’s Gift*” by Jeff Brumbeau and Gail de Marcken

- Visit *Quilts and Children’s Literature*. Carol Hurst’s Children Literature site, 11/2017, carolhurst.com/subjects/quilts.html
- Search on-line for craft stores or community centers for a speaker about quilting, cake decoration or history of quilts in your community. Book a time to have them speak and share your quilt cakes.

Video, How to cream butter and sugar, chsugar.com/Creaming_Butter_and_Sugar

