



Volume 33
Dough Sculpting 101

Dedicated to Delivery

Nasco FCS Lesson

Dough Sculpting 101 - Soft Pretzels: Bread with a Twist

Grade level: Middle School

Prepared by: Sharon Davis, FCS Teacher, HomeBaking.org

National FCS Standards:

2.1 Demonstrate management of individual and family resources such as food, clothing, shelter, health care, recreation, transportation, time, and human capital.

2.1.3 Analyze decisions about providing safe and nutritious food for individuals, families, and communities.

8.2 Demonstrate safe food handling procedures.

8.4.7 Apply principles of measurement, portion control, conversions, food cost analysis and control, menu terminology, and menu pricing to menu planning.

8.5.10 Prepare breads, baked goods, and desserts using safe handling and professional techniques.

8.5.14 Demonstrate cooking methods that increase nutritional value, lower calorie and fat content, and utilize herbs and spices to enhance flavor.

14.3.1 Apply various dietary guidelines in planning to meet nutrition and wellness needs.

Career Clusters & Pathways:

- Hospitality and Tourism
- Food Production and Services

FCCLA Connections:

- STAR Event — Food Innovations
- Student Body
- Power of ONE/Leadership Service in Action

Essential Questions:

- Is it worth the investment of time and ingredients to produce soft pretzels at home or for food sales?
- Can soft pretzels be produced to meet the Smart Snack guidelines for in-school food sales?

Objectives:

Students will...

- Review the history and current consumer market for soft pretzels.
- Read soft pretzel recipe directions, organize tools and ingredients (mis en place), accurately measure and produce soft pretzels.
- Calculate and compare unit costs of similar commercially sold and lab-prepared soft pretzels using retail package labels, package net and unit weight, the recipe net baked weight and ingredient costs.
- Locate and contrast Nutrition Facts labels on commercially and lab-prepared soft pretzels, adjusting to equalize portion net weights to fairly compare sodium, whole grain, fat, and calories.
- Determine if lab-prepared soft pretzels meet Smart Snack guidelines for sale in school hours.

Technology Connections:

- Use USDA's Smart Snack school guidelines <http://healthymeals.nal.usda.gov/smartsnacks> and Smart Snack calculator <http://bit.ly/YqbuR1>
- Determine if, or how, pretzels can meet in-school bake sales guidelines
- Also see Bake for Funds <http://homebaking.org/bakesalecentral.php>

Introduction:



- Soft pretzels are a great way to assist students in applying history, ingredient and nutrition sciences, and consumer math to a popularly sold bread product. With innovations, students can market their products for both in- and out-of-school sales.
- Soft pretzels can be baked in as short a time as 45 minutes, or divided into two or three labs. (See Bakers Tips side bar or Time Saving Techniques provided — p. 134, Lab 12 *Dough Sculpting 101* DVD or *A Bakers Dozen Labs* manual).
- Bread with a Twist activities vary in length for use throughout the baking lesson.



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Materials list — each lab or team will need:

- Soft pretzel commercial package labels with price net weight, nutrition facts, ingredients
- Electronic food scale
- Large bowl
- Large mixing spoon
- Measuring cups (liquid & dry) and spoons
- Yeast, flours, sugar, salt, water, cooking oil
- Large egg
- Fork & bowl to beat egg
- Pastry brush
- Pretzel sprinkles (coarse salt, seeds, cinnamon sugar)
- Kitchen scissors
- Baking sheet pans
- Parchment paper
- Oven
- Cooling racks or cutting boards to set hot pans
- Food wrap or bags
- Soft pretzel recipe handout (go to eNasco.com/page/lesson33)
- Tips for Shaping Success Handout (go to eNasco.com/page/lesson33)
- *Optional: skillet, water, baking soda*
- MORE: *Home Baking Association How to Make Soft Pretzels: Dough Sculpting 101* DVD (Cat. No. WA32838H)





Soft Pretzel History

610 AD: Early 7th century southern France Monks (Romans) credited with first pretzel shape. Used leftover dough; called shape "pretiolas." Monks gave pretzels to reward children for learning their prayers.

1510: Pretzel bakers saved Vienna; first heard Turks invading.

1614: Wood cut shows pretzel held by couple as a marriage knot uniting two families; wishing on pretzels became a common wedding ritual; pretzels symbolize long life and a blessing.

New Year's Day Tradition: Black Forest children wore pretzels on ribbon loops around necks.

1652: Colonists arrested for selling pretzels to Native Americans.

1861: Julius Sturgis Pretzel House, Lititz, PA, first sells pretzels — and is still baking!

Source: *Pretzels by the Dozen* by Angela Elwell Hunt.

Activity 1: Cultural History (5-10 minutes)

Explore what a soft pretzel is and its cultural history. Who do you think made the first pretzel? (See Soft Pretzel History.) Why do you think they are shaped the way they are?

Activity 2: Consumer Science (10-15 minutes)

Use ingredient and Nutrition Facts labels for soft pretzel products (or ESHA Food Processor software information) and discuss consumer interest in soft pretzels, their ingredients, nutritional value, and their costs. Who enjoys soft pretzels? Why? Where do you usually buy them? (Answers vary — store, mall, fairs, games, street vendor, airport, etc.) What do they cost to buy?

Activity 3: Consumer Math (15 minutes)

How much do you think they cost if we make them ourselves? List each ingredient cost; total only the amount used in a recipe; divide by number of pretzels a recipe produces. (About 15¢ each.) How much will you charge for each pretzel in a food sale or cafeteria?

Activity 4: Nutrition Science (20 minutes)

Compare ingredients in commercial recipe and soft pretzel recipe included. In what food group are they? (Grain.) What nutrients do they provide? (Carbohydrates, fiber; and B-vitamins, iron, folic acid, plant protein, sodium, potassium, if whole grain.) Why are they a good food choice and when are they not a good choice? (People need 50-60% of their calories from carbohydrates for brain and muscle fuel; super-sized pretzels may be too caloric; may have a super load of sodium; daily limit 2,300 mg — see sodium http://homebaking.org/glossary/old_glossary.html). Are they whole grain? If not, how could this be done? (Substitute 51% or more whole wheat or whole grain flours.) Was sodium under 230 mg per serving (Smart Snack guide)? If not, how could you reduce the sodium? (Top with a favorite seed or cinnamon and sugar instead of coarse salt.)

Activity 5: Culinary Baking (90 minutes)

Plan how to bake soft pretzels. Create whole grain, unique pretzel flavors and shapes. Read recipe top to bottom. Discuss sequence of preparations. Divide tasks, assemble ingredients and tools. Prepare dough; bake as directed. Cool; evaluate products (Kitchen Science forms p. 4 http://homebaking.org/PDF/final_kitchenscience.pdf).

Activity 6: Local Service Learning (1 day)

Plan to express thanks with a pretzel delivery to school or community mentors. Conduct a pretzel bake sale in or out of school to raise funds for your favorite cause.

- Bake for Funds guide: <http://homebaking.org/bakesalecentral.php>
- Gluten-Free Pretzels: *A Baker's Dozen Labs Manual* (Cat. No. WA27798H)

Teacher Tips

- Divide into two or three-day labs: Prepare a cool dough (80° F water) and refrigerate dough in large sealable containers, allowing room and deflating and rounding dough when it doubles in size.
- More time-saving techniques are provided in *Dough Sculpting 101 DVD* (Cat. No. WA32838H) or in *A Baker's Dozen Labs manual* (Cat. No. WA27798H).
- One-day baking: Speed up the dough using fast-rising yeast methods requiring very warm water and very short fermentations. Do consumer activities on separate days.

Demonstration images taken from *Dough Sculpting 101 DVD*.





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Volume 33
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Nasco FCS Lesson

Dough Sculpting 101 - Refrigerator Potato Dough

Grade level: High School

Prepared by: Sharon Davis, FCS Teacher, HomeBaking.org

National FCS Standards:

1.2.1 Analyze potential career choices to determine the knowledge, skills, and attitudes associated with each career.

1.2.4 Demonstrate teamwork skills in school, community, and workplace settings.

1.3.3 Analyze personal and family assets and skills that provide service to the community.

4.3.5 Arrange learning centers that provide for children's exploration, discovery, and development.

8.1 Analyze career paths within the food production and food services industries.

8.4.7 Apply principles of Measurement, Portion Control, Conversions, Food Cost Analysis and Control, Menu Terminology, and Menu Pricing to menu planning.

8.5 Demonstrate professional food preparation methods and techniques for all menu categories to produce a variety of food products that meet customer needs.

14.3.3 Demonstrate ability to select, store, prepare, and serve nutritious and aesthetically pleasing foods.

Career Clusters & Pathways:

Early Childhood Education
Food Production and Services

FCCLA Connections:

Career Connection
Power of ONE/Leadership Service in Action

Essential Question:

How do families and culinary professionals add value to the breads they bake?

Objectives:

Students will...

- Explore careers in baking production, baking science, or culinary baking.
- Calculate the costs of producing potato roll yeast dough.
- Identify how much value is added through specialty dough shaping and how much consumers would pay per unit and the final retail value of one recipe.
- Use safe-food preparation and handling techniques for food sales.
- Apply professional food preparation techniques, teamwork, portion control, and uniform shaping techniques for aesthetically pleasing products for food sales.
- Serve families or their community by planning a learning opportunity for an early childhood audience to develop large and small motor skills, math sequencing, and literacy through dough sculpting.

Career & Technology Connections:

- *Baking Builds STE(A)M* PowerPoint® at HomeBaking.org
- Bakery/Baking Science, Kansas State University at <http://www.grains.k-state.edu/undergraduate-programs/degree-options/bakery-science-and-management.html>
- Baking & Pasty, Johnson & Wales University at www.jwu.edu
- *Kitchen Blueprint to Math, Science, Art, and Literacy* PowerPoint® for Early Childhood education at HomeBaking.org

Introduction:

Dough sculpting with refrigerator potato dough provides the "just like Grandma's" connection for culinary baking-for-profit products in restaurants or local bakery sales. This dough handles beautifully and may be shaped in short labs or refrigerated for two- or three-day production schedules by following refrigeration techniques. Dough production, time-saving tips, and a wide variety of specialty roll and loaf shapes are demonstrated on the *Dough Sculpting 101* DVD (Cat. No. WA32838H). Additional lab resources are contained on the DVD including specialty cookies, centerpiece display dough sculptures, and Play Clay for early learners! Additional baking science found in the *A Baker's Dozen Labs* manual (Cat. No. WA27798H). Consult HBA's Baking Glossary at HomeBaking.org for additional baking test-kitchen resources and links with baking ingredient and term entries.



For additional FREE lesson plans go to... eNasco.com/fcs

Materials list — each lab or team will need:

- *Dough Sculpting 101* DVD for demonstrated dough preparation and shaping methods (Cat. No. WA32838H)
- Ingredients for Refrigerator Potato Dough
- Stand mixer/bowl/attachments
- Baking sheet half pans
- Parchment pan liners
- Electronic scales
- Measuring tools
- Food thermometer
- Dough bench knife or bowl scraper to divide dough
- Plastic wrap
- Pan spray
- Wire cooling racks
- Food wrap/packaging/labels for rolls, loaves
- Local connections handout ([go to eNasco.com/page/lesson33](http://go.to/eNasco.com/page/lesson33))
- Refrigerator Potato Dough recipe handout ([go to eNasco.com/page/lesson33](http://go.to/eNasco.com/page/lesson33))
- Roll shapes handout ([go to eNasco.com/page/lesson33](http://go.to/eNasco.com/page/lesson33))
- Tips for shaping success handout ([go to eNasco.com/page/lesson33](http://go.to/eNasco.com/page/lesson33))

Additional resources:

- *A Baker's Dozen Labs* manual (Cat. No. WA27798H)
- Commercial examples with prices (sliced bread and rolls and specialty/artisan rolls, loaves)



Day 1: Consumer Math & Science



Activity 1: Exploration (10 minutes)

Explore consumer concept of “value-added.” Where do you purchase daily bread products? (Varies — day-old bakery store, supermarket, etc.) How much do you pay for 1 lb./16 oz packages of buns, rolls, or loaves? (Varies — \$1.89 to \$2.89+.) If we baked these in our homes or lab, how much do the ingredients cost? (Generally can make 2+ lbs. of similar product for approximately \$1.75.) What is the advantage of baking for yourself? (Locally made, flavor, control of ingredients — whole grain, variety of grains, freshness, no preservatives, variety of shapes, sizes, etc.) In culinary, what does “value-added” mean? (With a special shape, ingredient, or technique a product gains value in the eyes of the consumer, they are willing to pay more, allowing more profit.) Dough sculpting or specialty shaping “adds value” to a dough.

Activity 2: Career Connections (10 to 30 minutes)

Explore who needs to know how to prepare a dough — cookie, muffin, yeasted — for a culinary or food career. Will it make you a more valuable employee if you can bake as a part of your culinary skills? Where can you learn baking skills for home and career? Visit websites (see Career & Tech Connections) for PowerPoint® or baking career sites. Careers in baking begin at home, 4-H or FCCLA, culinary classes — and may continue to certification, apprenticeship or to a Ph.D. Baking can take you all over the world!

Activity 3: Baking Preparations (20-30 minutes)

Read and assemble recipe ingredients; read each step, assemble equipment, and determine if you know how to use it. As needed, view Refrigerator Potato Dough preparation demonstration on *Dough Sculpting 101* DVD (Cat. No. WA32838H).

Activity 4: Baking Science (15 minutes)

Research what yeast eats at www.breadworld.com and www.redstaryeast.com. Find essential yeast temperatures in *A Baker's Dozen Labs* manual (Cat. No. WA27798H).

Day 2: Baking Lab

Activity 1: (20-30 minutes)

Prepare the Potato Refrigerator Dough Recipe (go to eNasco.com/page/lesson33 and print) — either to shape immediately or to refrigerate and shape the next day.

Activity 2: (20-30 minutes)

Each team divides/scales one recipe of dough into thirds (1 lb. 4 oz.) and shape three to six different shapes rolls using lab diagram directions.

- How to shape rolls is demonstrated on *Dough Sculpting 101* DVD (Cat. No. WA32838H) along with additional braids, loaves, and centerpiece sculptures.
- Bake as directed for the size and shapes selected.
- Cool baked product on wire racks (until 100° F at center), wrap individually or in quantities that will sell or be served.
- NOTE: Potato dough products will remain moist for second day serving/sales. Centerpiece sculptures use a plain yeast dough.



Day 3, 4, 5: Family, Career and Community Connections



Activity 1: (20-30 minutes)

Students can “add value” to their baking by passing forward food knowledge and skills AND gain experience with early childhood education! Discuss why, how, and where students could set up learning centers that provide for children’s exploration, discovery, and literacy development. Discuss using either Play Dough [*Dough Sculpting 101* DVD (Cat. No. WA32838H)] or real bread dough that could be shaped into numbers, letters, or bread sticks for pre-K to second grade classroom, after school program, or

a community club. What skills will early childhood students gain? (math numerals, large and small motor skills, alphabet, literacy sequencing, following directions, etc.) Check out *Kitchen Blueprint to Math, Science, Art, and Literacy* PowerPoint® for Early Childhood education at HomeBaking.org.

Activity 2: (30 minutes)

Prepare to conduct a dough discovery learning activity.

- Choose a *Dough Sculpting 101* recipe or activity that fits the ages and environment where you’ll conduct the activity.
- Select a book to read with the recipe/activity chosen. See Local Connections handout to get started (go to eNasco.com/page/lesson33 and print).
- Review *The Thrill of Skill* age-appropriate guide at HomeBaking.org
- Divide duties. Assemble tools and ingredients or have the dough ready-to-go. Make name tags.

Activity 3: (60 minutes)

Just do it! Be sure to copy the recipe and book title(s) read to send home with the children.

EXTRA!

Share what you’ve done. Enter the annual HBA Educator Award and win \$1,000! For current details go to HomeBaking.org.

Demonstration images taken from *Dough Sculpting 101* DVD.