

Quick Breads: A Practical Application

Summary

The ingredients, methods and processes that produce quality products from stir-and-pour batters.

Main Core Tie

Food And Nutrition

[Strand 3 Standard 3](#)

Background for Teachers

The texture of pour-and-drop batters (cakes, hot cakes, cookies, and quick breads) is created as a foam-like structure of small holes or pockets and is formed among the protein strands of hydrated glutenin and gliadin contributed by the flour in the batters. Starch granules are carbohydrates embedded in the protein strands.

The flour forms both a gel and a protein network. When heated to high temperatures, the proteins coagulate and form the structure of the product. Whole wheat flour creates a smaller volume and, therefore, a smaller product because the germ in the wheat inhibits gluten (protein) development. The holes in the foam-like batters are pockets where carbon dioxide was evolved, water changed to steam, or air expanded during heating. If the cooking temperature is too low or too much leavening is introduced, the holes get too large, explode, and/or the cell walls get thick. Small thin cell walls result from too little leavening. The batters, especially in cakes and quick breads are judged by their textures, flavor, and appearance.

Manipulation through stirring, mixing, or kneading bonds the proteins by sliding them by each other. The amount of manipulation effects appearance, tenderness, volume, and texture. Peaked tops, large holes, and tunnels in the finished product are not desirable. Too much kneading breaks gluten strands, loses the gases produced by leavening agents, and makes the products tough and of lesser volume. Excessive development of gluten is not desirable in pour-and-drop batters.

Intended Learning Outcomes

Knowledge of the properties of the ingredients of pour-and-drop batters will show students that both recipes and chemical equations are linked to the food chemicals involved and that proper use of those food chemicals produces a deferrable product.

Instructional Procedures

See attachments below:

The students will take a PREASSESSMENT quiz to determine their current knowledge about pour-and-drop batters, their ingredients, and purposes.

The students will participate in a match game activity to identify the INGREDIENTS IN QUICK BREADS AND THEIR FUNCTIONS. (See BACKGROUND INFORMATION.)

NOTE TO THE TEACHER: Prepare white 3+5 cards with the functions of the ingredients written on them. Prepare colored 3+5 cards with the ingredients written on them. Pass out one set of cards to each unit. Have the students work together to correctly assign the function to its ingredient.

The teacher will demonstrate how to make biscuits using the biscuit method. During the demonstration, the teacher will explain the correct technique/s for mixing quick breads and help the students to determine what the probable outcome/s will be if the ingredients in quick breads are not measured correctly. (see BACKGROUND INFORMATION - MIXING AND MEASURING TECHNIQUES.)

The students will participate in a SCIENTIFIC LAB EXPERIENCE using correct mixing and

measuring techniques to make DANISH ABLESKIVERS.

The purpose of the lab is to:

Review mixing techniques for the muffin method of mixing.

Learn how to turn ableskivers and how to test for doneness.

Correctly follow the ableskiver recipe to make a finished product.

As a follow-up evaluation of the lab, the students will complete worksheet DANISH ABLESKIVERS EVALUATION as they and the teacher discuss the technique used to make the batter, the functions of the ingredients in the recipe, and the chemical leavening agent used in the recipe.

The teacher will do a SCIENTIFIC LAB DEMONSTRATION on how to make KRUMKAKE batter and how to use a Krumkake iron. During the demonstration, the students will be able to identify the type of batter used to make Krumkake and the leavening agent which makes Krumkake rise.

Information to discuss while making Krumkake:

Sugar: browns the crust, tenderizes, and flavors

Eggs: give structure

Butter: a fat that tenderizes

Flour: provided structure and gluten

As a FORMATIVE UNIT REVIEW, the teacher will lead the students in a discussion about the functions of quick bread ingredients and chemical leavening agents by having them successfully complete an ORAL QUIZ.

The teacher will provide the students with a variety of food products made from pour-and- drop batters and have the students complete JUDGING SCORE CARDS that assess quality. Have a variety of products ranging in quality from poor to excellent and have the students, as part of their scoring, try to identify the reasons for the lower quality.

As a SUMMATIVE EVALUATION REVIEW, the teacher will demonstrate the making of BELGIAN WAFFLES and review the functions of the ingredients used in pour-and-drop batters (quick breads).

As a SUMMATIVE EVALUATION, the teacher will provide the students with three sets of recipes and have them compare and contrast the leavening agents, ingredients, and mixing methods. this test should be reviewed in class to allow the students the opportunity to correct any misdirected information they may have.

If time permits and the teacher chooses, the students may prepare the recipes given for POPOVERS, CREAM PUFFS, AND PANCAKES.

Authors

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