

Fun with Quick Breads

4-H Bread Project: Basic Unit



Objectives

- To acquire knowledge in the principles of bread making.
- To learn the basic ingredients of quick breads and the purpose of each.
- To understand the differences between plain and self-rising flour.
- To learn methods of combining or mixing ingredients.
- To gain skills in the preparation of batters and doughs.
- To learn the characteristics of high-quality baked products.
- To understand the place of breads in the diet.

Things To Do

1. Make the quick bread recipes in this book and score them by the scorecard.
2. Do the experiments listed in this book.
3. Complete the 4-H Bread Activity Record in this book.
4. Add to your recipe box the recipes that you prepare.
5. Make at least one exhibit of a baked product.
6. Do at least one visual presentation related to bread baking.

Suggested Topics for Visual Presentation

- Breads Made by the Conventional Method
- Products Mixed by the Batter Method
- Biscuits Made from Self-Rising Flour versus Biscuits Made from Plain Flour (leavening and salt added to plain flour during mixing)
- The Three Wheat Flours (white, unbleached, and whole wheat): Their Differences and Uses
- Different Sections of a Kernel of Wheat



Nutritive Value of Bread

Bread in a variety of forms is popular with people all over the world. Bread is made from wheat, other cereal grains, and from non-cereal products.

Bread made from wheat flour (either white flour that has been enriched or whole wheat flour) is a nutritious food containing carbohydrates, B vitamins, and several minerals in small amounts, including iron. In the southern part of the United States, bread made from cornmeal is widely accepted. The nutritive value of cornbread is similar to that made from wheat flour, with some variation.

This comparison of nutritive value is based on breads made from basic recipes. When various ingredients are added to either kind of bread, the nutritive value changes to include the additional ingredients.

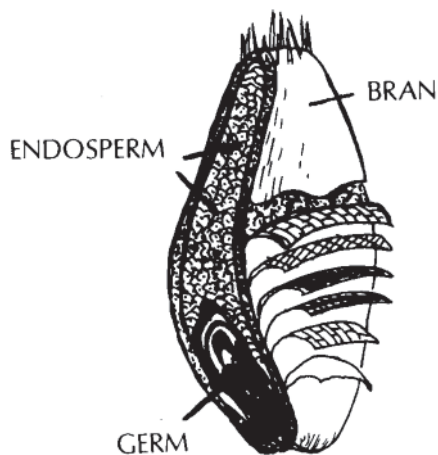
Purpose of Ingredients

Flour

Flour made from wheat is the main ingredient for most batters and doughs. Although flours are made from rye, rice, and other grains, wheat flour continues to be the most popular.

White flours and off-white (unbleached) flours are made from the endosperm (see grain of wheat). Whole wheat (graham flour) is made from the entire wheat kernel, which includes the bran, endosperm, and germ. Off-white (unbleached) flour is the color of flour when it is first milled, before certain chemicals known as oxidizing agents are added to whiten it. If off-white flour is stored for several months, it becomes whiter as it gradually reacts with chemicals from the air. Because this method takes a long time, people who mill flour add safe chemicals (oxidizing agents) to the flour to whiten it more quickly. In this way people can have white flour at a lower cost.

The quality of the unbleached and bleached flours are the same.



Whole wheat flour is light brown, the color of the whole wheat grain.

Most flour used for baking purposes in the home is a blend of wheat flours to yield an all-purpose flour suitable for most types of baking.

Leavening Agents

Leavening agents are substances to help bread dough rise. Quick breads are made with leavening agents that react quickly. These breads can be baked immediately after mixing and do not require a rising period before baking. In this way, quick breads differ from yeast breads. The leavening agents most often used in making quick breads are baking soda plus an acid or baking powder.

A recipe using soda includes an acid, such as sour milk, buttermilk, cream of tartar, or molasses. When the acid is in liquid form, soda is mixed with the dry ingredients before the liquid is added. When soda is mixed with an acid such as buttermilk before adding to dry ingredients, carbon dioxide (CO₂), the gas that causes the bread to rise, forms quickly and much of it is lost before it becomes part of a dough.

Liquid

Milk, water, or another liquid is needed to moisten the flour, dissolve the salt and sugar, and permit the leavening agents to release gas (CO₂), which helps the bread to rise. Milk contributes nutrients and aids in browning of the product.

Fat or Shortening

Shortening in liquid or solid form helps to make quick breads tender. Fats, such as butter and margarine, add flavor and color. For bread with a flaky crumb, a solid fat is the better choice.

Salt

In some recipes, salt is added for flavor; in others, salt is used to bring out the flavor of ingredients.

Sugar

Sugar provides flavor, increases tenderness, and helps to develop a fine texture in bread products. Care must be used in measuring sugar since too much may cause a sticky texture.

Eggs

Eggs contribute nutrients, flavor, and color to breads. In some doughs, egg whites are separated from the yolks and beaten until stiff. The beaten egg whites are then folded in the dough mixture to increase tenderness and volume of a baked product.

Rules of Baking

- Follow recipes carefully; read at least twice before assembling equipment and supplies.
- Measure flour as directed. If recipe calls for sifted flour, sift first and then measure. One cup of unsifted flour contains more flour than 1 cup of sifted flour.
- Combine ingredients in the order given.
- Use recommended pan size when possible. This is important for batter breads since volume of finished product may be affected.
- Bake at temperature given in recipe.
- Before storing, cool breads, then wrap.

Baking Hints

- For a crisp crust, place biscuits about an inch apart on baking pans. This allows for expansion during baking. For soft biscuits, place biscuits close together in baking pan.
- Use 2 to 3 tablespoons of shortening to each cup of flour. The larger amount will yield a more tender biscuit.
- For rich biscuits or shortcakes, use 3 tablespoons of shortening and 2 tablespoons of sugar to each cup of flour. This mixture is suitable for strawberry shortcakes.

- For tender biscuits, stir ingredients together just enough to blend, then knead lightly 10 to 15 times. Avoid overmixing or overkneading.

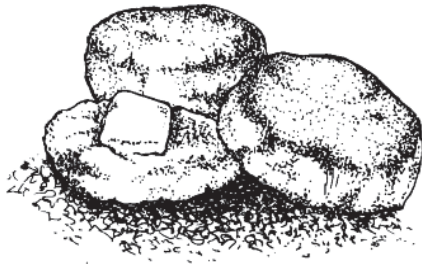
General Procedures for Various Quick Breads

Biscuits

Sift flour, measure and sift other dry ingredients with measured flour. Sifting flour adds air, which helps to make the baked product lighter. Sifting flour with other dry ingredients helps to blend them.

Use cold fat and cut into flour with two knives or a pastry blender until mixture resembles coarse meal. This method of distributing fat contributes to flakiness and tenderness. Melted fat or oil makes a less flakey product.

Add liquid to dry ingredients and mix quickly. Knead about 10 to 15 strokes. Overkneading produces a tough, close-grained biscuit. For a more flaky biscuit, fold and roll dough 10 to 15 times in place of kneading.



Muffins—Cornmeal or Other Type

Sift dry ingredients together for even distribution. Mix muffin batter just enough to blend. Avoid overbeating since overbeating causes heavy and irregular grain (texture) tunnels within product and peaks on top. Bake only until golden brown. Overbaking produces a dry crumb and hard crust.

Cornbread

For a lighter product replace $\frac{1}{4}$ to 1 cup cornmeal with flour to each 2 cups of cornmeal in the recipe. For a crumbly cornbread, replace only $\frac{1}{4}$ cup of cornmeal with flour to each 2 cups of cornmeal in the recipe. Add eggs for color, flavor, nutritive value, and increased volume. Use sugar as desired. Bake in a hot oven, about 425–450 °F.

Mixing Methods

Conventional method: When this method is used, the dry ingredients are combined and shortening is cut into the dry ingredients (two knives or a pastry blender is needed for this step); then liquid is added to dry ingredients.

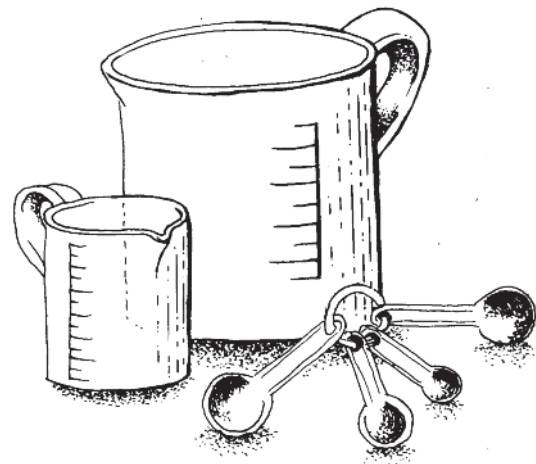
Muffin method: With this method, all of the dry ingredients are mixed together in one container. In a separate container, all the liquid ingredients are combined; then the liquid ingredients are added to the dry ingredients. Check recipes in this publication and list two recipes that represent each of the mixing methods:

Conventional method: 1. _____ 2. _____
Muffin method 1. _____ 2. _____

How To Measure Ingredients

Use correct measurements when you make quick breads. The recipes in this project book are based on the standard dry-cup measure for such ingredients as flour, meal, and sugar; the standard liquid-cup for milk, water, and other liquids; and standard measuring spoons for both dry and liquid ingredients. (Except for brown sugar, ingredients are not generally packed down in the cup.)

To measure with a dry cup, fill the cup full of dry ingredients and level it with a straight edge. When measuring liquid, place the cup on an even surface and fill to the desired level. Level off measuring spoons with a straight edge, too. When using measures other than standard, try to find cups and spoons as close to the size of standard measures as possible. The jars you buy food in sometimes have standard cup markings.



Recipes

Biscuits

Baking Powder Biscuits

Yield: 10–12 biscuits

2 cups enriched all-purpose flour, sifted
3 teaspoons baking powder
3/4 teaspoon salt
1/3 cup shortening
2/3 cup milk, about

Preheat oven to 450 °F.

Sift flour and measure. Add baking powder and salt to measured flour and sift together.

Cut shortening into flour until mixture resembles coarse cornmeal. Add most of the milk and stir to mix. Add remaining milk, if needed, to make a soft but not sticky dough.

Gather dough into a ball and place on a lightly floured board or bread cloth. Knead dough lightly 10–15 times. Pat or roll dough to 1/2-inch thickness. Cut with favorite biscuit cutter.

Bake 12–15 minutes. For crispy sides, place biscuits 1 inch apart; for soft sides, place biscuits close together on pan.

Self-Rising Flour Biscuits

Follow recipe for Baking Powder Biscuits, but omit baking powder and salt.

Buttermilk Biscuits

2 cups enriched all-purpose flour, sifted
1 teaspoon baking powder
1/3 teaspoon soda
3/4 teaspoon salt
1/3 cup shortening
2/3 cup buttermilk

Sift flour and measure. Add baking powder, soda, and salt to measured flour and sift together.

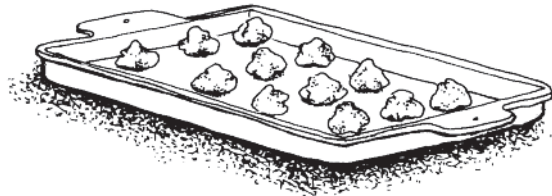
Cut shortening into flour mixture until it resembles coarse cornmeal. Add most of the milk and stir to mix. Add remaining milk, if needed to make a soft but not sticky dough.

Gather into a ball and place on a lightly floured board or bread cloth. Knead dough lightly 10–15 times. Pat or roll dough to 1/2-inch thickness. Cut with your favorite biscuit cutter.

Bake at 450 °F for 12–15 minutes. For crispy sides, place biscuits 1 inch apart; for soft sides, place biscuits close together on pan.

Drop Biscuits

Follow recipe for Baking Powder Biscuits or Buttermilk Biscuits, making the dough softer by increasing milk to 1 cup. Drop spoonfuls of batter onto an ungreased baking sheet and bake at 450 °F until tops are golden brown.



Biscuit Variations

- Add 1/2 cup grated cheese, chopped candied fruit, grated fruit peel, or chopped seedless raisins before milk is added.
- Prepare a mixture of sugar and cinnamon (1/2 cup sugar and 1 teaspoon cinnamon) and sprinkle over biscuit tops before baking.
- Roll biscuit dough into an 8x12-inch rectangle. Spread with melted butter or margarine and sprinkle with brown sugar. Roll dough as for jelly roll; cut into 12 slices and place cut side down into a 9-inch greased pan. Bake at 425 °F for 12–15 minutes.

Potato Biscuits

1 1/4 cups enriched all-purpose flour, sifted
7/8 teaspoon salt
3 teaspoons baking powder
3 tablespoons shortening
3/4 cup cold mashed potatoes
2/3 cup milk, about

Preheat oven to 400 °F.

Sift flour and measure. Sift together flour, salt, and baking powder. Cut shortening into flour until mixture resembles coarse cornmeal.

Stir potatoes into flour mixture. Gradually add enough milk to make a soft dough.

Knead dough 10–12 times on a lightly floured board. Pat or roll out dough to about 1/2-inch thickness. Cut with your favorite biscuit cutter and bake on an ungreased baking sheet for 12–15 minutes. For crispy sides, place biscuits 1 inch apart; for soft sides, place biscuits close together on pan.

Whole Wheat Biscuits

2 cups whole wheat flour, unsifted
1 tablespoon baking powder
1 teaspoon salt
1 tablespoon brown sugar
1/3 cup shortening
3/4 cup milk

Preheat oven to 450 °F.

Combine flour, baking powder, salt, and sugar. Mix well. Cut shortening into dry ingredients until mixture resembles coarse cornmeal.

Gradually add enough milk to make a soft but not sticky dough. Knead dough on lightly floured board 12–15 times. Roll or pat dough to 1/2-inch thickness. Cut with desired cutter.

Bake on an ungreased pan for about 15 minutes. For crispy sides, place biscuits 1 inch apart; for soft sides, place biscuits close together on pan.

Variation

For a lighter biscuit, substitute 3/4 cup of white flour for 3/4 cup of the whole wheat flour.

Snack Treats

Sesame Seed Twists

1 recipe Baking Powder Biscuit dough
1 egg, beaten
1 tablespoon milk
Sesame seeds

Stir milk into beaten egg.

Prepare one recipe of Baking Powder Biscuit dough. Cut dough with a 2½- to 3-inch biscuit cutter. Stretch each biscuit to about 5 or 6 inches in length. Twist. Dip into egg-milk mixture. Roll in sesame seeds.

Place on a lightly greased baking sheet and bake at 450 °F for about 10 minutes.



Cinnamon Twists

1 recipe Baking Powder Biscuit dough
3 tablespoons melted butter or margarine
3 tablespoons sugar
1/4 teaspoon cinnamon
½ cup nuts, finely chopped

Prepare one recipe of Baking Powder Biscuit dough. Cut dough with a 2½- to 5-inch biscuit cutter. Stretch each biscuit to about 5 inches in length. Twist. Combine sugar, cinnamon, and chopped nuts. Roll each biscuit in melted butter or margarine and then in sugar-nut mixture.

Bake on an ungreased baking sheet at 450 °F for about 10 minutes.

Muffins

Plain Muffins

2 cups all-purpose flour, sifted
3 teaspoons baking powder
2 tablespoons sugar
½ teaspoon salt
1 cup milk
1 egg, beaten
3 tablespoons shortening, melted

Preheat oven to 400 °F.

Combine dry ingredients. Stir milk into beaten egg; add oil or melted fat. Stir milk mixture into dry ingredients until moistened.

Avoid overbeating; batter should be lumpy. Fill greased muffin pans 2/3 full. Bake until browned, about 25 minutes.

Variations

- Add berries to dry ingredients.
- Substitute 1 cup bran, oatmeal, or whole wheat flour for 1 cup white flour.
- Add raisins or your favorite chopped dried fruit to dry ingredients.
- Add 1/3 cup shredded cheese.

The following two recipes can be mixed up and refrigerated for several weeks and used as needed.



Bran Muffins

1 15-oz package wheat bran flakes cereal with raisins
5 cups all-purpose flour
3 cups sugar
1 tablespoon plus 2 teaspoons soda
2 teaspoons salt
4 eggs, beaten
4 cups buttermilk
1 cup vegetable oil

Combine first five ingredients in a large bowl; make a well in center of mixture. Add eggs, buttermilk, and oil; stir just enough to moisten dry ingredients. Cover and store in refrigerator until ready to bake. (Batter can be stored in refrigerator up to 6 weeks.)

When ready to bake, fill greased muffin cups 2/3 full. Bake at 400 °F for 12–15 minutes. Makes about 5½ dozen.

Granola Muffins

1 cup whole bran cereal
1/2 cup oil
1¼ cup honey
2 eggs
2½ cups whole wheat flour
2½ teaspoons soda
1 teaspoon salt
2 cups granola cereal
1¾ cups buttermilk

Combine bran and 1 cup boiling water in 3-quart container. Let stand for 20 minutes or until water is absorbed. Combine oil, honey, and eggs in large bowl and beat well. Mix in buttermilk. Add to bran mixture; mix well. Combine flour, soda, salt, and granola. Blend slowly into bran mixture, mixing well. Refrigerate covered for several hours.

Fill greased muffin cups 2/3 full. Bake at 375 °F for 22–25 minutes or until well browned. May add chopped nuts, apples, or raisins to batter before baking. Unused batter will keep up to 4 weeks.

Peanut Butter Muffins

This recipe uses a combination of conventional and muffin mixing methods.

2 cups self-rising flour
¼ cup sugar
1/3 cup chunky peanut butter
1 cup milk
2 eggs, beaten
2 tablespoons vegetable oil or melted shortening

Combine flour and sugar in a large bowl; cut in chunky peanut butter until mixture resembles coarse meal. Set flour mixture aside.

Combine remaining ingredients, beating well. Add milk mixture to dry ingredients; stir just until mixture is moistened. Spoon batter into greased 3-inch muffin pans, filling 2/3 full. Bake at 400 °F for 20–25 minutes. Makes 12 muffins.

Cornbread

Plain Cornbread

1¼ cups enriched cornmeal
¾ cup enriched flour
3 teaspoons baking powder
¾ teaspoon salt
1 tablespoon sugar
1 egg, beaten
1¼ cups milk
¼ cup melted shortening

Preheat oven to 450 °F.

In a mixing bowl, combine meal, flour, baking powder, salt, and sugar. Beat eggs slightly and gradually stir 1 cup of milk into eggs. Pour milk and egg mixture into dry ingredients and stir to mix. Add melt-

ed shortening and remaining milk, if needed, to make a medium-thick batter.

Pour batter into a greased 8-inch pan* and bake until crust is golden brown, about 30 minutes.

*Greased pan may be heated before filling it with the cornmeal mixture.

Cornmeal Muffins

Preheat oven to 450 °F. Combine ingredients for making cornbread. Fill greased muffin cups* 2/3 full of batter. Bake about 20–25 minutes.

*Greased muffin pan may be heated before filling it with batter, if desired.

Self-rising Cornbread

2 cups enriched self-rising cornmeal
1 tablespoon sugar
1 egg, beaten
1 to 1¼ cups milk
¼ cup melted shortening

Preheat oven to 425 °F.

In a mixing bowl, combine self-rising cornmeal and sugar. Beat egg slightly and stir 1 cup of milk into eggs. Pour milk and egg mixture into dry ingredients and stir to mix. Add melted shortening and remaining milk if needed to make a medium-thick batter.

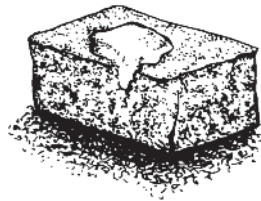
Pour batter into a greased 8-inch pan and bake until crust is golden brown, about 30 minutes.

Cornmeal Cakes

Preheat a heavy saucepan or skillet. Combine ingredients for making cornbread. Use more liquid if needed to make a slightly pourable batter.

Lightly grease hot skillet. Pour about ¼ cup of batter onto hot skillet for each cake. Cook until golden brown on one side.

Using a spatula, turn cake and brown on other side. For a light cake, do not press or mash with the spatula. Remove cornmeal cakes one at a time and stack on a platter. Serve hot. To keep the first of the cornmeal cakes warm while others are cooking, hold in an oven at about 150–200 °F.



Experiments

Experiment 1

Fill 3 glasses half full of water and number them 1, 2, and 3. To glass number 1, add 2 tablespoons of vinegar; to glass number 2, add 2 tablespoons of lemon juice; do not add anything to glass number 3.

Add 1 heaping teaspoon of soda to the liquid in glass number 1 and beat vigorously. Record results by glass number 1 below.

Repeat this procedure for each of the glasses, proceeding one at a time.

Glass number 1 _____

Glass number 2 _____

Glass number 3 _____

What caused the results in two of the glasses? Record your answers below.

Glass number 1 _____

Glass number 2 _____

Glass number 3 _____

Experiment 2

Make one recipe of Baking Powder Biscuit dough and one recipe of Self-rising Biscuit dough. Knead each recipe of dough the same number of times. Roll dough to ½-inch thickness and cut each with the same size cookie cutter. Bake biscuits the required time and temperature for each recipe, then compare the Baking Powder Biscuits to the Self-rising Biscuits. Use the scorecard on page _____. Record the points on scratch paper, then total the points for Baking Powder Biscuits and for Self-Rising Biscuits. Write the scores in the appropriate space below:

Baking Powder Biscuits _____ Self-Rising Biscuits _____ Which received the higher score? _____

Were the scores the same? Yes _____ No _____

Experiment 3

Prepare a 12-cup muffin pan (grease each cup) and mark the pan to indicate which end will hold the properly beaten muffins and which will hold the overbeaten ones.

Make one recipe of Plain Muffin batter. Carefully follow the directions given in the recipe. After the batter is mixed, distribute half of the mixture among six of the prepared muffin cups. Then beat the remaining batter 20 additional strokes and distribute it into the other six muffin cups.

After baking, select two muffins from each end of the pan (two that were beaten 12–15 times during mixing, and two that were beaten 20 additional times). Use the scorecard to evaluate the size, shape, and color. Record these scores on scratch paper.

Pull each of the four muffins apart and examine the texture. Which muffins contain a fair distribution of very small holes?

Muffin beaten 12–15 times ___ Yes ___ No
Muffins beaten 20 additional times ___ Yes ___ No

Evaluate the texture on scratch paper, using the scorecard as mentioned above. Add the scores of each on scratch paper and write the total scores on the following lines:

1. Score from muffins beaten 12–15 times ___
2. Score for muffins beaten 20 additional times ___

Which muffins received the higher score? Muffins number 1 (beaten 12–15 times) or muffins number 2 (beaten 20 additional times)? ___

Explain your results: _____

Experiment 4 (optional)

Wheat flour is usually available as white flour, unbleached flour, and whole wheat flour. To examine differences in the flours, pour 1 cup of each kind on individual sheets of white paper (typing paper or similar paper will do). Visually observe the differences in color, and then check the texture by rubbing some of each flour between your thumb and fingers.

Use descriptive terms such as white, off-white, cream, light brown, and brown to describe the color of each flour. For texture, use one of the following terms that best describes the flour: soft and fine, soft but somewhat granular, coarse, and medium coarse.

Record of Flour Observations

Bleached or white flour: _____

Color _____

Texture _____

Unbleached flour: _____

Color _____

Texture _____

Whole wheat flour: _____

Color _____

Texture _____

Scorecard for Judging Biscuits and Muffins	Possible Score: 100	Excellent	Good	Fair	Needs Improvement
OUTSIDE APPEARANCE Crust: Uniformly or evenly brown except for slightly darker top crust than side crust; free from yellow or brown spots; tender; fairly smooth crust.	15				
Shape: Uniform and good size for product; free from bulges on sides or top; slightly rounded top and fairly straight sides for muffins.	15				
Volume: Almost twice the volume of the unbaked bread.	20				
INSIDE APPEARANCE Texture: Tender; slightly moist; fine crumb, not doughy or crumbly.	20				
Color: Uniform and normal for ingredients (type of flour, liquid, sweetening, amount of egg) with no brown or yellow spots; creamy white for most quick breads.	10				
FLAVOR Pleasing; well-blended with no decided taste of salt, fat, soda, baking powder, or spices.	20				

Scorecard for Judging Cornbread and Corn Muffins	Possible Score: 100	Excellent	Good	Fair	Needs Improvement
OUTSIDE APPEARANCE Crust: Uniformly golden brown, crisp, tender, somewhat rough, slightly cracked.	15				
Shape: Depending on baking pan, slightly rounded top.	15				
Volume: Almost twice the volume of the unbaked bread.	20				
INSIDE APPEARANCE Texture: Tender; slightly moist; not doughy; slightly open, even cells; loose crumb; crunchy crust.	20				
Color: Uniform and normal for ingredients (type of meal, amount of egg) with no dark spots; crust golden brown.	10				
FLAVOR Pleasing; well-blended with no decided taste of salt or baking powder; good nutty baked flavor.	20				

