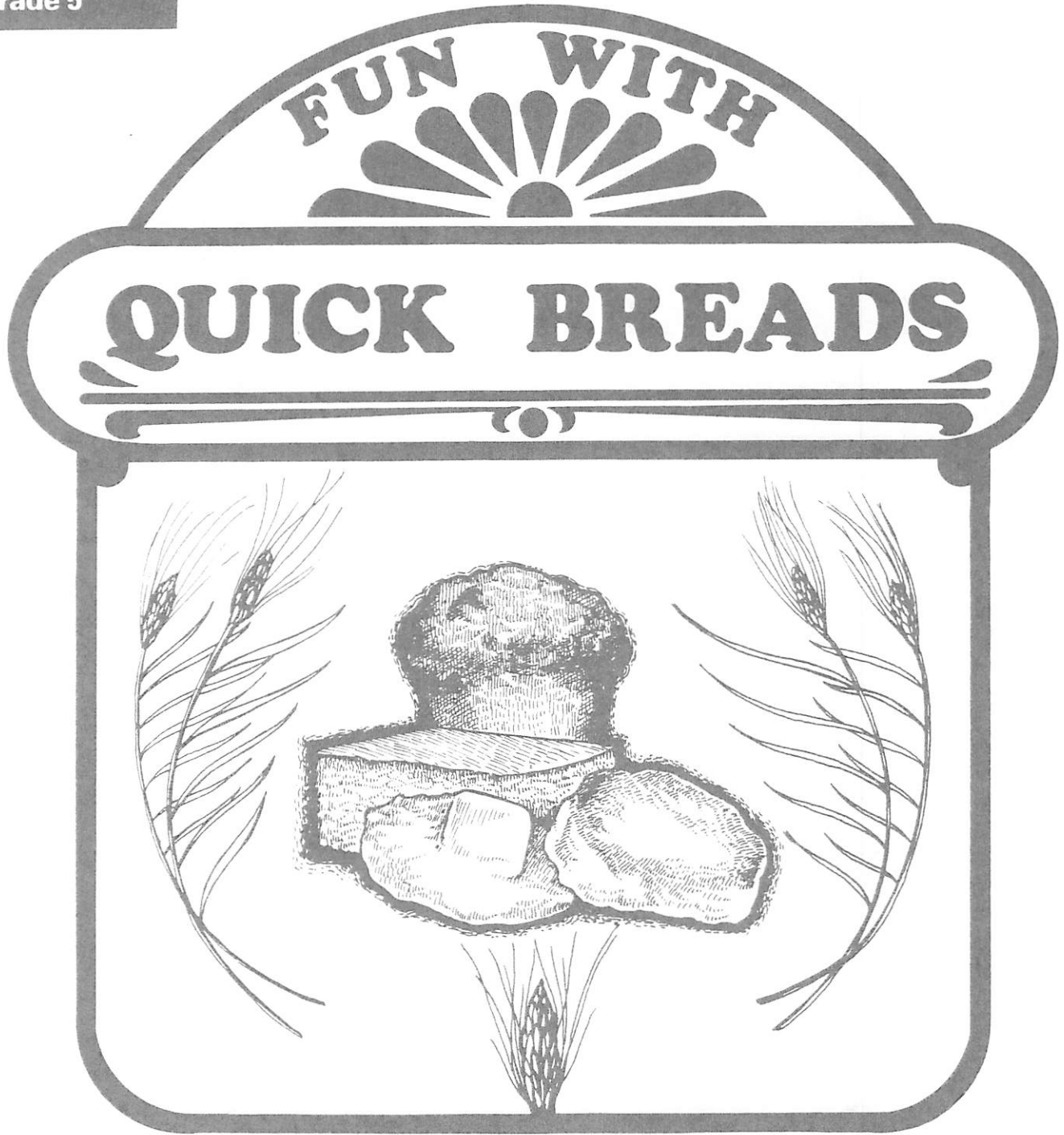




BREAD



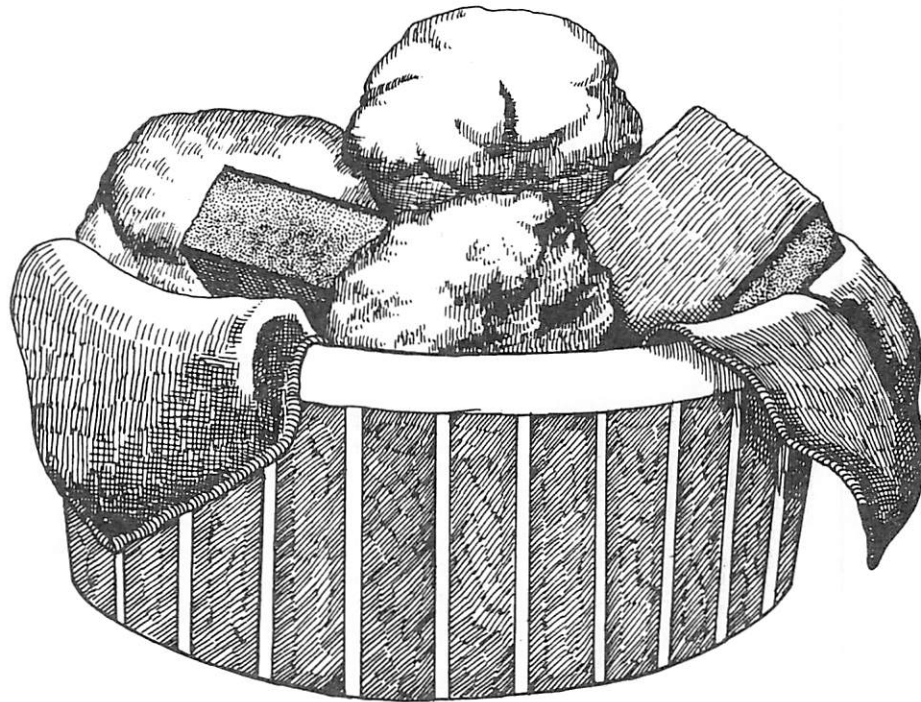
Name \_\_\_\_\_

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## TABLE OF CONTENTS

	<b>PAGE</b>
Objectives .....	3
Things To Do .....	4
Suggested Topics for Demonstrations .....	4
Nutritive Value of Bread .....	4
Purpose of Ingredients .....	4
General Procedures for Various Quick Breads .....	5
Rules of Baking .....	6
Baking Hints .....	6
Mixing Methods .....	6
How to Measure Ingredients .....	7
Recipes .....	8
Biscuits .....	8
Muffins .....	9
Snack Treats .....	10
Corn Bread .....	11
Experiments .....	13
Scorecard for Judging Biscuits and Muffins .....	16
Scorecard for Judging Corn Bread and Corn Muffins .....	17
Scorecard for Judging Spoon Bread .....	18
4-H Quick Bread Activity Record .....	19
Quick Breads Puzzle .....	21

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Food, Nutrition and Health*



## OBJECTIVES

1. To gain knowledge about principles of making quick breads.
2. To name the purpose of each basic ingredient used in quick breads.
3. To understand the differences between plain and self-rising flours in bread making.
4. To learn methods of mixing ingredients for batters and doughs in bread making.
5. To gain skills in the preparation of batters and doughs.
6. To learn the characteristics of high-quality, quick bread products.
7. To appreciate the place of breads in the diet.

## THINGS TO DO

The 4-H member who participates in this project unit should plan to:

1. Make a variety of quick breads based on the recipes in this project book.
2. Keep and submit 4-H Quick Bread Activity Record (page 19).
3. Demonstrate something learned while enrolled in the bread baking project.
4. Enter locally arranged bread baking contest.
5. Give an illustrated talk on principles involved in making quick breads.

Suggested References:

- Family Fare*, USDA Home and Garden Bulletin No. 1.  
*Bread, Cakes and Pies in Family Meals*, USDA Home and Garden Bulletin No. 186.

## SUGGESTED TOPICS FOR DEMONSTRATIONS

The use of "all-purpose" flour is recommended in order to develop product standards and to make comparisons. Note: How to do a demonstration appears on page 22.

- I. Breads made by the biscuit method
- II. Breads made by the muffin method
- III. Similarities of biscuits made from self-rising flour and from plain flour having adjustments for leavening and salt.
- IV. Comparisons among product outcomes when selected flours are used for common bread products.

## INTRODUCTION

Bread in some shape and form is popular worldwide, and serves as a dietary staple. Bread is made from the ground, refined parts of wheat, other cereal grains, and from some non-cereal products. The refined part is called flour or meal and is mixed with liquid and other ingredients. Breads result from cooking flour mixtures called batters or doughs.

Bread made from wheat flour, either enriched white or whole wheat, is a nutritious food containing carbohydrates, proteins, B-vitamins, and several minerals in small amounts, including iron.

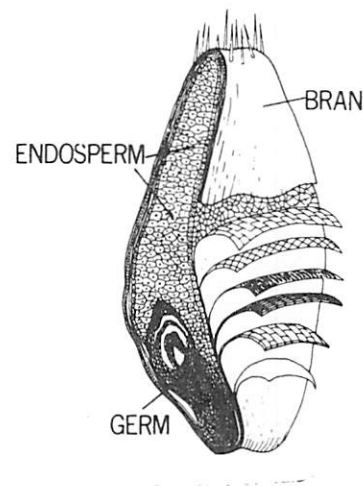
Many breads are simple mixtures, being quick to prepare and cook. As a class, these products are called quick breads, and they tend to reflect regional and cultural preferences. In the ~~southern~~ part of the U.S. a popular batter bread made with cornmeal is called cornbread. From similar basic recipes ingredients may be adjusted which affect the nutrient value and the sensory characteristics of the bread outcomes.

## PURPOSE OF INGREDIENTS

### Flour

The flour most used for home baking is a wheat flour called all-purpose flour. Favorable results for many products are possible. This type of flour may be either "plain" or "self-rising." Self-rising flour contains baking powder (for leavening) and salt in proportions suitable for most quick breads and simple cakes.

Flour made from wheat is the principal ingredient for most batters and doughs. Although flours are made from rye, rice, corn, and other grains, wheat flour contains certain proteins that give structure and shape most preferred for the finished product.



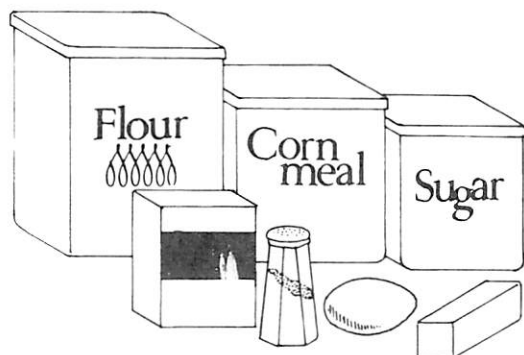
Flour is labeled "bleached" or "unbleached" on the package. Bleached (white) flour and unbleached (somewhat off-white) flour are made from the endosperm of wheat. Whole wheat (graham) flour is made from the entire wheat kernel which includes the bran, endosperm and germ. Newly milled flour is naturally an off-white color. If the off-white flour is stored for several months, it will become whiter as it ages and reacts gradually with oxygen from the air. Because this method takes a long time, flour millers add safe chemicals, called oxidizing agents, to the flour to bleach, or whiten, it quickly. In this way consumers can have white flour at low cost.

Until flour is chemically or naturally oxidized, its baking performance is reduced. After aging and oxidizing the baking qualities of both bleached and unbleached flours generally are the same.

Whole wheat flour has a light brown color and a somewhat gritty texture. The wheat bran and germ appear as dark, coarse particles scattered throughout the flour. This flour is stirred rather than sifted before being measured.

Whole wheat flour combines with liquid readily. It stirs easily, but its batter or dough consistency often seems to be thicker or heavier than mixtures made with all-purpose flour. Breads made with whole wheat flour alone are heavy and dense and have low volume. Combining whole wheat flour with regular white flour gives favorable qualities to finished bread.

The term "flour" when used alone means flour from wheat. However, flours from different varieties of wheat have qualities that make them special for use in certain products. The nature and uses of speciality flours will be discussed in other 4-H project books.



### Leavening Agents

Leavening agents are ingredients used to create gases within batters and doughs. Gases inside the flour mixture expand and leaven or make light the baked product. Leavened products gain volume, lightness, and improved texture as a result of the force of the expanding gases.

In general, the gases are formed by chemical reactions. The most useful gas for leavening a baked product is carbon dioxide (CO<sub>2</sub>). CO<sub>2</sub> results from the combining of an acid-reacting and an alkali-reacting ingredient when both are in the same solution. For example, buttermilk (acid-reacting) and baking soda (alkali-reacting) provide the elements for creating CO<sub>2</sub>. This combination is a familiar one in quick breads and some cakes.

Usually quick breads are made with baking powder as the principal leavening agent. Commercial baking powders contain a balance of reactive components which begin creating CO<sub>2</sub> as soon as they are wetted by the liquid ingredients. Baking powders called "double acting" give most of their CO<sub>2</sub> during the cooking process. Baking powder may be used with other means for creating leavening gases, but its use alone is reliable and popular for making quick breads.

### Liquid

Milk, water, or other liquid is needed to wet the ingredients in a flour mixture. Liquid works in the following ways to form the batter or dough: (a) wet the flour in order to develop gluten; (b) dissolve ingredients such as sugar, salt, and baking powder; (c) provide a means for other ingredients to scatter uniformly throughout the whole mixture. Liquid also makes some steam during cooking which is helpful in the leavening process.

Milk is the liquid commonly used in breads and cakes. It contributes flavor and nutrients and aids in browning the product. In addition, milk tends to help products retain moisture and to reduce staleness.

### Fat

Fat in solid or liquid forms contributes flavor and tenderness. Fats such as shortening, butter, margarine, and vegetable oils are most commonly used. Qualities such as flakiness, volume, and appearance are affected by the selection and amount of fat used in the recipe.

### Salt

Salt for flavor is the most important reason for using it in breads and other flour mixtures. In recipes using yeast, salt helps to control the speed of action by the yeast. Sometimes salty flavors result from the combining of other ingredients in the mixture. Therefore, the amount of salt used should be in small amounts.

### Sugar

Sugar provides flavor, increases tenderness, adds body, holds moisture, and helps to develop fine texture overall. The steps for measuring and combining sugar are important in achieving its many useful contributions in a mixture.

### Eggs

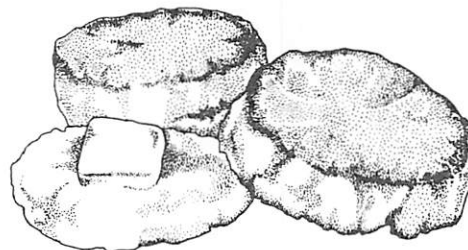
Eggs contribute nutrients, flavor, binding, and color to breads and other flour mixtures. For some batters, egg whites are separated from the yolks and beaten into stiff foams. The beaten egg white foam is then folded into the mixture to increase volume and tenderness of the baked product.

## GENERAL PROCEDURES FOR QUICK BREADS

Flour is the principle ingredient in quick breads. Sifting the flour before measuring it is a standard procedure because flour particles settle in their container. The first sifting separates the particles so that an accurate measure results. After the flour measurement is obtained, other measured dry ingredients are combined and sifted with the flour. Sifting adds air among the particles, and the air contributes to the work of the leavening gases.

### Biscuits

Biscuits are a soft dough mixture that holds its shape during baking. The dough is usually cut or shaped into individual portions before baking. The measured dry ingredients are combined with solid fat through a cutting, or blending action. The solid fat is separated into small, coarse particles throughout the flour, and this use of solid fat contributes flakiness as well as tenderness to the biscuits. Melted fats or vegetable oil require different mixing techniques for the dough and give tenderness but not flakiness.



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

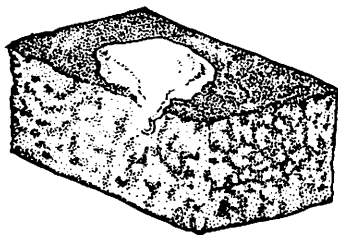
Sift dry ingredients together for even distribution.

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 of cornmeal with flour to each 2 cups of cornmeal in 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° F - 450° F.

#### Spoon Bread

Stir cornmeal into scalded milk or boiling water for a light-textured bread. Some recipes reverse this order by adding hot liquid to the cornmeal. Add other ingredients as specified in recipe.

Bake at a moderate temperature, about 425° F.

Serve while hot. Cold spoon bread is generally less appetizing than are other cold cornmeal breads.

## 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 very 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 two tablespoons of sugar to each cup of flour. This mixture is suitable for strawberry short cakes.

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

## 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 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. \_\_\_\_\_ 1. \_\_\_\_\_

Muffin Method: 1. \_\_\_\_\_ 2. \_\_\_\_\_

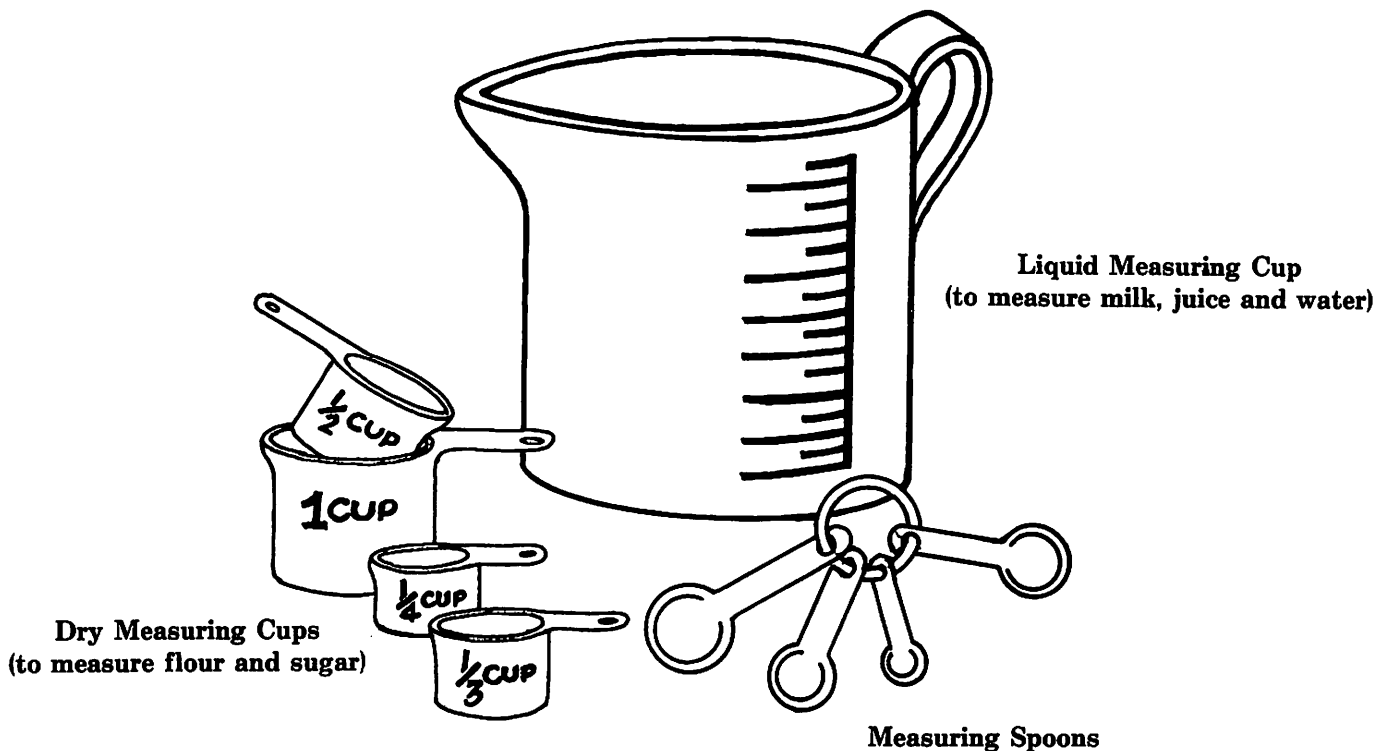
measure for such ingredients as flour, meal and sugar\*; the standard liquid cup for milk, water and other liquids; and standard measuring spoons for both dry and liquid ingredients.

To measure with the dry cup, fill cup full of dry ingredients and level with a straight edge. In measuring liquid, place cup on an even surface and fill to desired level. Measuring spoons are considered full also when level.

When using measures other than standard, try to find cups and spoons as near the size of standard measures as possible. Often jars in which food has been purchased contain standard cup marking.

## HOW TO MEASURE INGREDIENTS

In making quick breads, best results are obtained when correct measurements are used. The recipes in this project book are based on the standard dry cup



## RECIPES

### Biscuits

#### Baking Powder Biscuits

Yield: 10-12 biscuits

2 cups enriched all-purpose flour, sifted  
3 teaspoons baking powder  
 $\frac{3}{4}$  teaspoon salt  
 $\frac{1}{3}$  cup shortening  
 $\frac{2}{3}$  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 breadcloth. Knead dough lightly 10-15 times. Pat or roll dough to  $\frac{1}{2}$ -inch thickness. Cut with favorite biscuit cutter.

For crusty sides place biscuits 1-inch apart on an ungreased baking pan and bake at 450° F. for 12-15 minutes.

For soft sides, place biscuits close together on baking pan and bake at 450° F. for 12-15 minutes.

#### 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  
 $\frac{1}{3}$  teaspoon soda  
 $\frac{3}{4}$  teaspoon salt  
 $\frac{1}{3}$  cup shortening  
 $\frac{2}{3}$  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 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  $\frac{1}{2}$ -inch thickness. Cut with favorite biscuit cutter.

For soft sides place biscuits close together on baking pan. Bake at 450° F. for 12-15 minutes.

For crusty sides place biscuits 1-inch apart on an ungreased baking pan and bake at 450° F. for 12-15 minutes.

*\*Sour milk may be used in place of buttermilk. Measure 1 cup of milk and remove 1 tablespoon. Add 1 tablespoon lemon juice or vinegar and stir. Use in place of buttermilk.*

#### Drop Biscuits

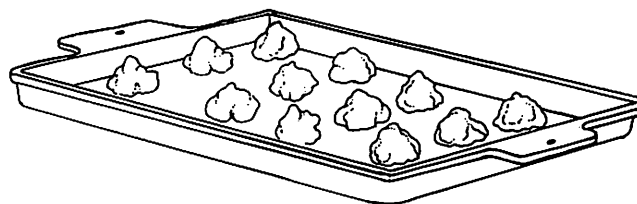
Follow recipe for either Baking Powder Biscuits or Buttermilk Biscuits making the dough softer by increasing milk to 1 cup. Drop spoonfuls of batter onto an ungreased baking sheet and bake at 450° F. until tops are golden brown.

Biscuit Variations:

—Add  $\frac{1}{2}$  cup grated cheese, chopped candied fruit, grated fruit peel, or chopped seedless raisins before milk is added.

—Prepare a mixture of sugar and cinnamon ( $\frac{1}{2}$  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.





### Beaten Biscuit

2 cups enriched all-purpose flour, sifted  
¾ teaspoon salt  
1¼ teaspoon sugar  
2 tablespoons lard  
½ cup cold water or milk\*

Preheat oven to 450° F.

Sift together flour, salt and sugar. Using fingers, rub lard into flour mixture. Add enough liquid, either cold water or milk, to make a stiff dough. Knead dough vigorously in mixing bowl until smooth.

Remove dough from bowl and place on a clean hard, smooth surface. Beat dough with a mallet, steak hammer or other similar object until beaten out flat. Fold and beat again and again until dough crackles and achieves a satin-like texture. This takes about 20 to 30 minutes of beating while using regular even beating motions.

Roll dough about ½-inch thick and cut with a small biscuit cutter.\*\* Place on an ungreased baking sheet. Prick tops of biscuits with fork tines to make two or three rows.

Bake in preheated 450° F. oven until light and golden brown; about 25 minutes. Serve hot or cold.

Beaten biscuits were made by early settlers in the U.S. at a time when leavening agents were difficult to obtain.

*\*Equal parts of milk and water may be used to yield ½ cup.*

*\*\*To shape biscuits with hands, force a small amount of dough up between the forefinger and thumb. Place dough on baking sheet, pat to flatten and prick with fork.*

### Potato Biscuits

1¼ cups enriched all-purpose flour, sifted  
7/8 teaspoon salt  
3 teaspoons baking powder  
3 tablespoons shortening  
¾ cup cold mashed potatoes  
⅔ 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 to 12 times on a lightly floured board. Pat or roll out dough to about ½-inch thickness. Cut with favorite biscuit cutter and bake on an ungreased baking sheet at 400° F. 12-15 minutes.

For crispy sides, place biscuits 1-inch apart on pans before baking; for soft sides place biscuits close together on pan before baking.

### Whole Wheat or Graham Biscuits

2 cups whole wheat flour, unsifted  
1 tablespoon baking powder  
1 teaspoon salt  
1 tablespoon brown sugar  
⅓ cup shortening  
¾ 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 ½-inch in thickness. Cut with desired cutter.

Bake on an ungreased pan at 450° F. for about 15 minutes.

For biscuits with crispy sides, place biscuits 1-inch apart on pan before baking; for soft sides, place biscuits close together on pan before baking.

Variation: For a lighter biscuit, substitute ¾ cup of white flour for ¾ cup of the whole wheat flour.

### Muffins

#### Muffins — plain

2 cups all-purpose flour, sifted  
3 teaspoons baking powder  
2 tablespoons sugar  
½ teaspoon salt  
1 cup milk  
1 egg, beaten  
3 tablespoon 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 dry ingredients are moistened.

Avoid overbeating, batter should be lumpy. Fill greased muffin pans  $\frac{2}{3}$  full. Bake until browned, about 25 minutes.

Variations:

Add berries to dry ingredients.

Substitute 1 cup bran or 1 cup whole wheat for 1 cup flour.

Add raisins or favorite chopped dried fruit to dry ingredients.

Add  $\frac{1}{3}$  cup shredded cheese.

*\*See note under raisin bran muffins.*

### Raisin Bran Muffins

$1\frac{1}{4}$  cups enriched all-purpose flour, sifted  
2 cups raisin bran cereal  
3 teaspoons baking powder  
 $\frac{3}{4}$  teaspoon salt  
6 tablespoons sugar  
1 egg  
1 cup milk  
 $\frac{1}{3}$  cup oil or melted shortening

Preheat oven to 400° F.

In a large mixing bowl, combine flour, raisin bran cereal, baking powder, salt and sugar.

Beat egg slightly; stir milk into egg and add oil or melted shortening.\*

Pour milk, egg and fat mixture into dry ingredients and stir just enough to moisten ingredients. Batter should be lumpy.

Fill greased muffin cups half full of batter. Bake at 400° F. for 20-25 minutes.

*\*Shortening may be cut into flour mixture as in baking biscuits if this method is preferred.*

## Snack Treats

### Sesame Seed Twists

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

Stir milk into beaten egg.

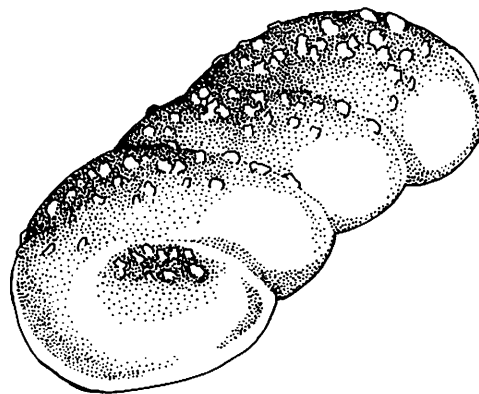
Prepare 1 recipe for Baking Powder Biscuits. Cut dough with a 2½ to 3-inch biscuit cutter. Stretch each biscuit to about 5 or 6 inches in length. Twist. Dip into egg-milk mixture. Roll in sesame seeds.

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  
 $\frac{1}{4}$  teaspoon cinnamon  
 $\frac{1}{2}$  cup nuts, finely chopped

Prepare 1 recipe for Baking Powder Biscuits. 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.

## Corn Bread

1¼ cups enriched corn meal  
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 melted shortening and remaining milk if needed to make a medium thick batter.

Pour batter into a greased 8-inch pan\* and bake at 450° F. until crust is golden brown, about 30 minutes.

*\*Greased pan may be heated before filled with cornmeal mixture.*

## Self-Rising Corn Bread

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 at 425° F. until crust is golden brown, about 30 minutes.

## Buttermilk Corn Bread

½ cup all-purpose enriched flour  
½ teaspoon soda  
2 teaspoon baking powder  
1½ cups enriched cornmeal  
¾ teaspoon salt  
1 egg, beaten  
1 to 1¼ cups buttermilk  
3 tablespoons butter or margarine

Preheat oven to 450° F.

In a mixing bowl, combine all dry ingredients.

Beat egg slightly and stir one cup of milk into egg. 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 at 450° F. until crust is golden brown, about 30 minutes.

*\*Greased pan may be heated before filled with cornmeal mixture.*

*Variations:*

*Add bacon pieces to either of the cornmeal mixtures prior to baking.*

*For a texture more like cake, increase sugar to ¼ cup and add 2 eggs in place of 1.*

## Spoon Bread

1½ cups boiling water  
1 cup enriched cornmeal  
1 teaspoon salt  
3 tablespoons butter or margarine  
1½ cups milk  
2 eggs  
3 teaspoons baking powder.

Preheat oven to 425° F.

In a heavy saucepan, heat water to boiling. While stirring constantly add cornmeal to water, continue stirring and cook until mixture resembles mush.

Remove from heat; add salt and butter or margarine.

Stir milk into beaten eggs and combine with cornmeal mixture. Add baking powder; mix well.

Pour into a greased 1½-quart baking dish. Bake until top is lightly browned, about 45 minutes.

Variation:

Add 2 tablespoons minced onion to batter before baking.

### Spoon Bread (4 eggs)

4 cups milk  
1 cup enriched cornmeal  
3 tablespoons butter or margarine  
2 teaspoons salt  
4 eggs  
1 teaspoon baking powder

Preheat oven to 425° F.

Scald 2 cups of milk in top of a double boiler. Add meal slowly to milk, stirring constantly. Continue stirring and cook to a consistency of thick mush.

Add butter or margarine and salt. Remove from heat.

Stir remaining 2 cups of milk into beaten eggs and combine with meal mixture. Add baking powder and mix thoroughly.

Pour into a greased 2-quart baking dish. Bake 45 to 50 minutes. Serve hot.

### Muffins

¼ cup all-purpose flour, unsifted  
½ cup cornmeal  
¼ cup oats, uncooked  
1¼ teaspoons baking powder  
½ teaspoon salt  
3 tablespoons sugar  
1 egg  
¼ cup vegetable oil or melted shortening  
½ cup milk

Preheat oven to 425° F.

In a mixing bowl combine flour, meal, oats, baking powder, salt and sugar.

In a separate bowl beat egg and add oil or melted shortening. Add milk and pour milk mixture over

dry ingredients. Stir enough to moisten, about 12 to 15 strokes.

Spoon into greased muffin cups, filling about ⅔ full. Bake in center of the oven until tops are golden brown.

### Cornmeal Muffins

Preheat oven to 450° F.

Combine ingredients for making corn bread.

Fill greased muffin cups\* ⅔ full of batter.

Bake at 450° F. for about 20-25 minutes.

*\*Greased muffin pan may be heated before filled with batter, if desired.*

### Cornmeal Cakes

Preheat a heavy saucepan or skillet.

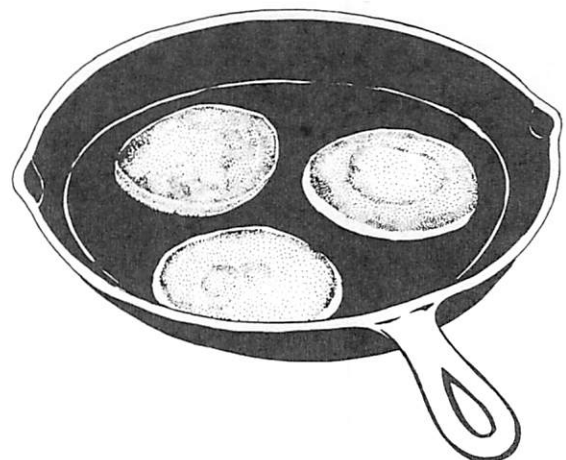
Combine ingredients for making corn bread. Use more liquid if needed to make a slightly pourable batter.

Lightly grease hot skillet. Pour about ¼ cup of batter on 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 spatula.

Remove cornmeal cakes one at a time and stack on 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 I

Fill four glasses half full of water and number them 1, 2, 3 and 4. To glass number 1, add 2 tablespoons of vinegar. To glass number 2, add 2 tablespoons of lemon juice. To glass number 3, add 2 tablespoons of buttermilk. Do not add anything to glass number 4.

Add one 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 other glasses proceeding one at a time.

Glass Number 1: \_\_\_\_\_  
\_\_\_\_\_

Glass Number 2: \_\_\_\_\_  
\_\_\_\_\_

Glass Number 3: \_\_\_\_\_  
\_\_\_\_\_

Glass Number 4: \_\_\_\_\_  
\_\_\_\_\_

What caused the results in two of the glasses? Record answer below.\*

Glass Number 1: \_\_\_\_\_  
\_\_\_\_\_

Glass Number 2: \_\_\_\_\_  
\_\_\_\_\_

Glass Number 3: \_\_\_\_\_  
\_\_\_\_\_

Glass Number 4: \_\_\_\_\_  
\_\_\_\_\_

\*Check "Leavening Agents" on page 5 for answers to questions.

## Experiment II

Make one recipe of Baking Powder Biscuits and one recipe of Self-Rising Biscuits.

Knead each recipe of dough the same number of times. Roll dough to ½-inch in thickness and cut each with the same size cookie cutter.

Bake biscuits the required time and temperature for each recipe, then compare Baking Powder Biscuits to the biscuits made from self-rising flour.

Use scorecard on page 16. Record points on scratch paper, then total points for Baking Powder Biscuits and for Self-Rising Biscuits. Write scores in appropriate spaces below:

Baking Powder Biscuits \_\_\_\_\_.

Self-Rising Biscuits \_\_\_\_\_.

Which received the highest score? \_\_\_\_\_

Were scores the same? Yes \_\_\_\_\_ No \_\_\_\_\_

## Experiment III

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

Make one recipe of Plain Muffins, on page 16. Carefully follow directions given in the recipe. After the batter is mixed, distribute half of mixture among six of the prepared muffin cups.

Then, beat remaining batter 20 additional strokes and distribute 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 score card on page 16. Evaluate size, shape and color and record on scratch paper.

Pull each of the four muffins apart and examine 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 texture on scratch paper, using scorecard as mentioned above.

Add scores of each on scratch paper and write 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 highest score? Muffins number 1 (beaten 12-15 times) or muffins number 2 (beaten 20 additional times)? \_\_\_\_\_

Explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Experiment IV (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 difference in color, then check texture by rubbing some of each flour between thumb and fingers.

Use descriptive terms such as white, off white, cream, light brown and brown to describe 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

---

---

### Answers to Quick Bread Puzzle

#### Across

1. carbohydrates
6. iron
7. salt
8. sugar

#### Down

1. cereal
2. biscuits
3. wheat
4. bread
5. shortening

## SCORECARD FOR JUDGING BISCUITS AND MUFFINS

	Possible Score — 100	Excellent	Good	Fair	Needs Improving
<b>OUTSIDE APPEARANCE</b> 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				
<b>INSIDE APPEARANCE</b> Texture — Tender; slightly moist; fine crumb, not doughy or crumbly.	20				
Color — uniform and normal for ingredients (kinds of flour, liquid, sweetening, amount of egg, etc.) with no brown or yellow spots — creamy white for most quick breads.	10				
<b>FLAVOR</b> Pleasing, well-blended with no decided taste of salt, fat, soda, baking powder, spices, etc.	20				

Note: Plan to participate in the 4-H Bread Project for grade 6. Learn how to make pancakes, crepes, popovers, waffles, fruit sauces and syrup. Learn preparation skills and how to do some experiments.



## SCORECARD FOR JUDGING CORN BREAD AND CORN MUFFINS

	Possible Score — 100	Excellent	Good	Fair	Needs Improving
<b>OUTSIDE APPEARANCE</b> 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				
<b>INSIDE APPEARANCE</b> Texture — Tender; slightly moist, not doughy; slight- ly open even cells, loose crumb and crunchy crust.	20				
Color — uniform and normal for ingredients (kinds of meal, amount of egg, etc.) with no dark spots; crust golden brown.	10				
<b>FLAVOR</b> Pleasing, well-blended with no decided taste of salt or baking powder; good nutty baked flavor.	20				

## SCORECARD FOR JUDGING SPOON BREAD

	Possible Score — 100	Excellent	Good	Fair	Needs Improving
<b>OUTSIDE APPEARANCE</b>					
Crust — slightly rounded top; free from buldges.	15				
Shape — tends to hold shape when spooned. Outside shape similar to a souffle.	15				
Volume — Almost twice the volume of the unbaked bread.	20				
<b>INSIDE APPEARANCE</b>					
Texture — creamy and moist, slightly crisp crust.	20				
Grain — fine crumb.					
Color — creamy white or delicately yellow, depending on ingredients used.	10				
<b>FLAVOR</b>					
Trace of butter or good nutty (as in corn bread) flavor.	20				

# 4-H QUICK BREAD ACTIVITY RECORD

19 \_\_\_\_\_

Name \_\_\_\_\_ School Grade \_\_\_\_\_

I have prepared and scored the following quick breads:

Date	Kind of Quick Bread Made	Amount	SCORE (Total Possible Points)						
			15 Shape	15 Crust	20 Volume	20 Texture	10 Color	20 Flavor	100 Total

Total number times quick bread prepared \_\_\_\_\_

Total amount quick bread prepared \_\_\_\_\_

Average score on all bread made \_\_\_\_\_

I have given quick bread demonstrations as follows:

Subject	Times	To Whom

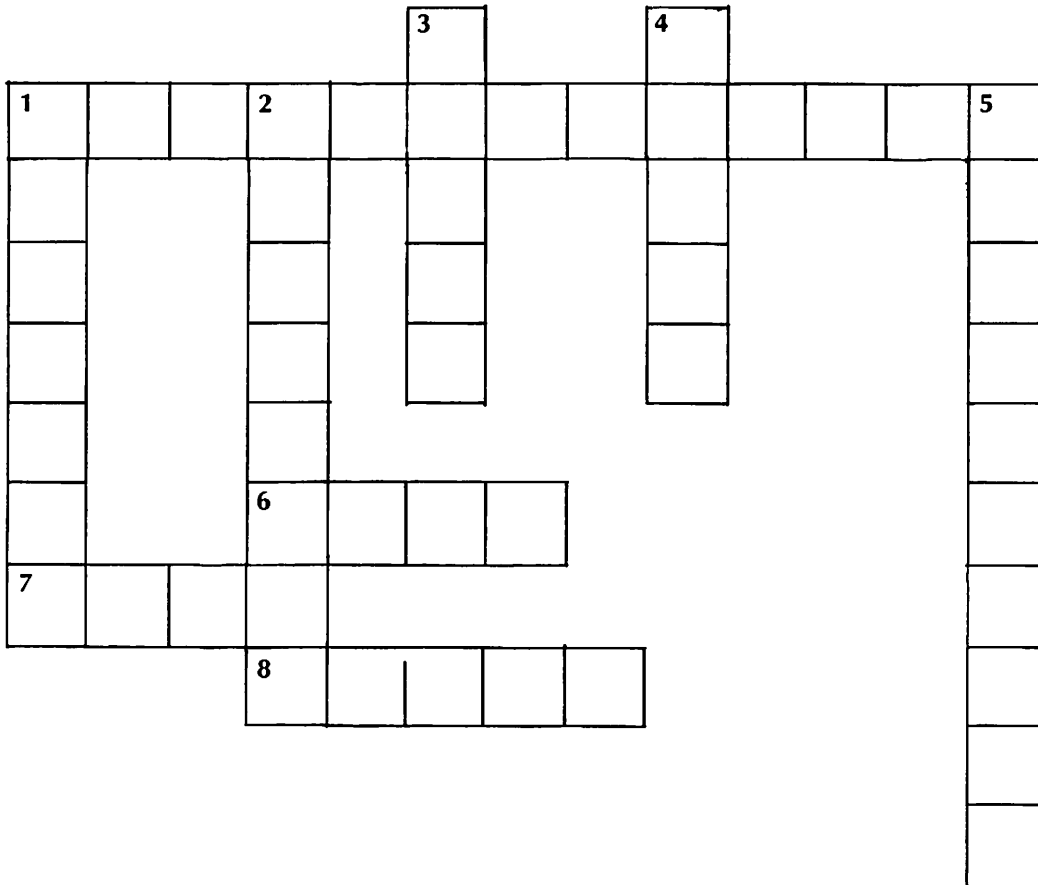
Check the following experiments you complete:

- Experiment 1. \_\_\_\_\_
- Experiment 2. \_\_\_\_\_
- Experiment 3. \_\_\_\_\_
- Experiment 4. \_\_\_\_\_

What did you learn from each of these experiments?

- Experiment 1. \_\_\_\_\_  
\_\_\_\_\_
- Experiment 2. \_\_\_\_\_  
\_\_\_\_\_
- Experiment 3. \_\_\_\_\_  
\_\_\_\_\_
- Experiment 4. \_\_\_\_\_  
\_\_\_\_\_

# QUICK BREADS PUZZLE



## ACROSS

- (1) Helps supply the body with energy (plural)
- (6) A nutrient needed to prevent anemia
- (7) A substance added to breads for flavor
- (8) A sweet ingredient found in muffin recipes

## DOWN

- (1) Breakfast foods prepared from grains
- (2) A product made from flour, salt, shortening, leavening agent and liquid
- (3) A grain from which flour is made
- (4) A name for biscuits, corn muffins and similar products
- (5) An ingredient that helps to make bread tender

Answers found on page 15.

## 4-H Bread Demonstration Tips

One of the most important things to do in preparing for a demonstration is to make detailed plans before the presentation. Some steps to remember are:

- Check to see how much time will be allowed for demonstration.
- Select a topic.
- Decide what ideas are important for the audience to hear and arrange these ideas in an orderly form (make an outline).
- Write or type outline on note cards, dividing demonstration into three parts: the introduction, body or main part and the summary. Use a brief, catchy introduction and then discuss the main subject or part of the demonstration. Close with a short summary which repeats only the major points.
- Prepare poster or other visual materials. Use well-spaced letters and words on posters. Keep message short! Crowded posters are hard to read.
- Make a list of everything needed for the demonstration.
- Measure ingredients to be used in preparing the bread and place on trays along with the quipment for mixing and baking. Fold one damp and one dry paper towel or cloth and put on the main tray to be used as needed to wipe hands or spills.
- Place a damp paper towel or cloth under trays to prevent slipping when set on a slick surface.
- Make sure all ingredients and equipment needed for presentation are within your reach — avoid turning your back ot the audience.
- Wear something to protect your clothing (preferable a light color). Keep hair back from face and secure hair with a net or hair spray. Do not touch hair during food preparation.
- Keep space clear between demonstration equipment and audience.
- Place each container that is used or emptied back on tray.
- Clear unnecessary equipment before bringing on another tray.
- Begin demonstration with introduction. Mix bread (describing reason for each ingredient). Place in prepared pans and then in the oven and set timer.
- Discuss the main part of the speech.
- Take bread from oven when baked. Remove from pans. Cool on a rack or folded towels.
- Using score card on page 18, rank the quality of the bread.\*
- Summarize briefly, repeating only the major points.
- Clear demonstration area and leave it clean.
- Practice demonstration at least once before presenting it. Check time and lengthen or shorten presentation as needed to stay within set time limit.

*\*If time allotted or demonstration site does not allow for baking bread, demonstrate how to prepare ingredients for baking, then show bread that has been baked and brought from home.*

## Additional Presentation Tips

Generally, it is best to greet your audience with “Good morning” or another similar pleasant remark. Recognition of many important people may be unnecessary except under special circumstances.

As a rule, the audience is expected to express their appreciation to the speaker, usually by applause. Since the speaker has done the presentation, he/she is not expected to say “thank you.” In instances when the speaker has asked for an audience, then expressing gratitude for the privilege is in order.

## NOTES

## The 4-H Pledge

I pledge my head to clearer thinking, my heart to greater loyalty, my hands to larger service and my health to better living for my club, my community, my country and my world.

### 4-H Motto

To make the best better!

### 4-H Colors

White stands for purity  
and high ideals.

Green is nature's most common color  
and is a sign of spring time,  
life and youth.

### 4-H Emblem

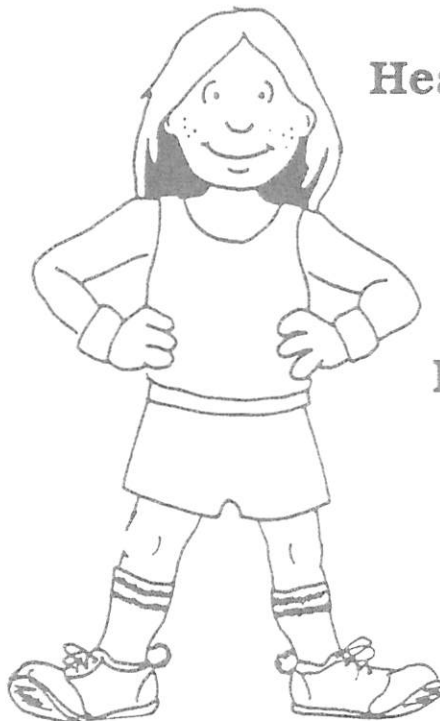
A green four-leaf clover  
with a white "H" in each leaf.

## The Four H's

### Head



### Health



### Heart



### Hands



Visit the Agricultural Extension Service Web site at <http://www.utextension.utk.edu/>  
and the 4-H Web site at <http://www.utextension.utk.edu/4H/>

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