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4-H 301 More Baking Fun

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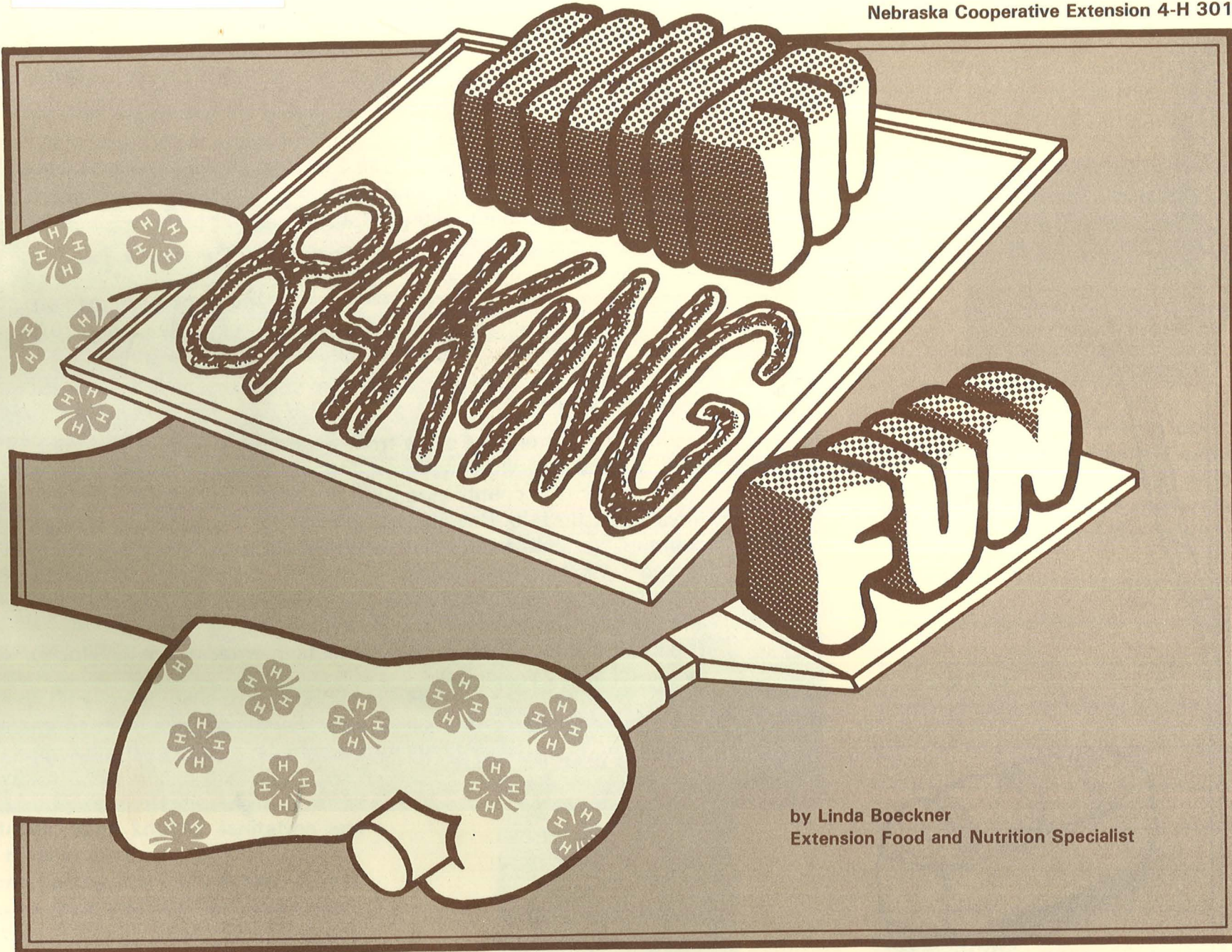
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Nebraska Cooperative Extension 4-H 301



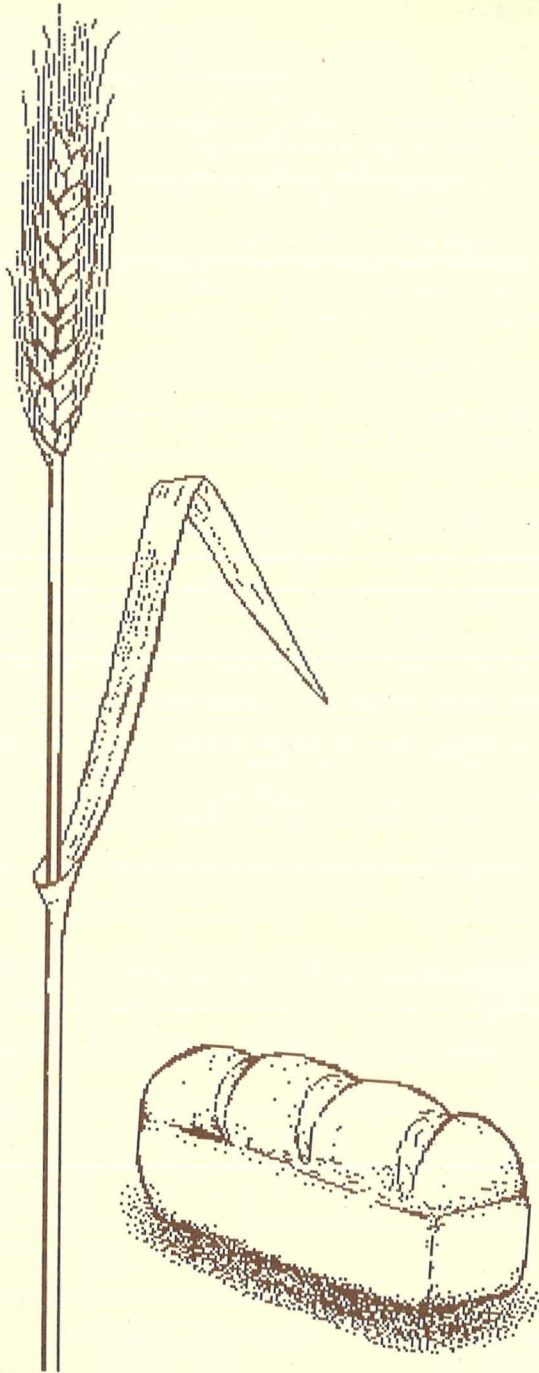
by Linda Boeckner
Extension Food and Nutrition Specialist



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"In spite of the vast variety available to the bread fancier, cooks...have rolled up their sleeves and begun to bake bread. Why? Because...most important, baking bread is an experience for the baker quite different from that attendant on any other cooking—more satisfying, more creative. Making bread at home is a kind of therapy."

Doris McFerran Townsend in *The Cook's Companion*.
Crown Publishers, New York. 1978

Acknowledgements:

Ideas for this project came from a variety of sources including: State extension services in Illinois, Indiana, Kansas, Ohio and Washington; Nebraska county extension offices in Adams, Brown-Rock-Keya Paha, Buffalo, Dawes, Hall, Phelps, Scotts Bluff and Stanton counties; National Association of Wheat Growers; Nebraska Wheat Growers Association; Division of Wheat Development of Nebraska Department of Agriculture; Fleischman's Yeast *The Baker's Dozen* and Fleischman's *Bake It Easy Yeast Book*. The Rapidmix and Coolrise bread making methods were developed by Fleischman's Yeast, Inc.

MORE BAKING FUN

Level II

Welcome to the second level of the baking projects. In this project, "More Baking Fun," you will explore the world of yeast breads and other advanced baked items. Before beginning this project you should have completed the first baking project, "Baking Is Fun!" You will continue to use the basic baking skills that you learned in the previous project even as you go on to learn new ones. You will:

- Experiment with the ingredients used in baking bread.
- Identify various ways of mixing yeast breads.
- Investigate various types of grains used in baking.
- Make decisions about the qualities of bread products and other baked items.
- Describe how bread products can be part of a healthy diet.

Once again you will need to get into the kitchen and be willing to experiment with your baking skills. Be willing to share your skills with others through demonstrations, exhibits and presentations. As you work in the kitchen, keep kitchen sanitation and safety rules in mind.

"More Baking Fun" is another chance for you to enjoy your kitchen experiences. Remember, you can learn something new from each experience in the kitchen — even the ones that don't appear to be suc-

cessful! Ask questions and be adventurous. The world of bread baking and other advanced baking projects is ready to be explored. Enjoy yourself! To finish this project you should be able to:

- Check 30 of the 36 items on the Skills Checklist.
- Make at least one loaf of white or whole grain bread, one special bread, and one cake or pastry product.

PART 1. Dietary Guidelines

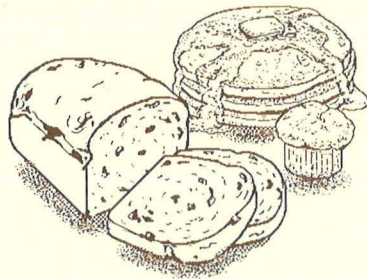
You probably already recognize that bread and grain products are part of a healthy eating plan. Have you ever wondered why they are needed in your daily diet? The United States Departments of Agriculture and of Health and Human Services have issued a set of guidelines for healthy eating habits. The Dietary Guidelines for Americans include these recommendations:

Eat a variety of foods
Maintain desirable weight
Avoid too much fat, saturated fat and cholesterol

Eat foods with adequate starch and fiber
Avoid too much sugar
Avoid too much sodium

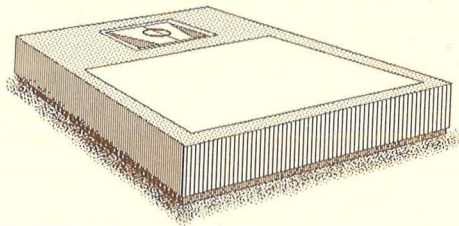
Take a few minutes now to look over the guidelines. Which guidelines can be met by including bread and bread products in the diet? Before you read any further, write your answers here and the reasons why:

If you answered that all of the guidelines would be helped by the presence of bread or grain products in diets, you are correct! Here's why:



EAT A VARIETY OF FOODS

A variety of breads will certainly enhance any menu: cereal, biscuits, muffins, pancakes, bagels, buns, flat bread, breadsticks, sourdough bread, whole wheat bread, Anadama bread, corn bread and on and on. What's more, we haven't even mentioned the various types of pasta and grain dishes that are available. Each product brings with it a unique contribution of nutrients. If you eat several kinds of bread and cereal products you have a greater chance of getting more and different nutrients.



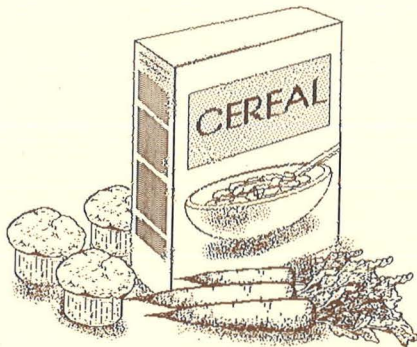
MAINTAIN DESIRABLE WEIGHT

Breads and cereals, by themselves, are not very fattening. This is especially true of bread products that don't have added fat or sugar. What's even better is that bread and bread products are **NUTRIENT DENSE** foods. That means they provide a lot of nutrients, especially vitamins and minerals, in comparison to the number calories.



AVOID TOO MUCH FAT, SATURATED FAT AND CHOLESTEROL

Many bread products are low in fat. If they do not contain egg yolks, they are also low in cholesterol. Of course, you need to select carefully. Some bakery items are made with extra fat, or they are prepared as a fried product. Sometimes we get too much fat because of what we add to bread products at the table: margarine or butter, mayonnaise, cream cheese and so on.



EAT FOODS WITH ADEQUATE STARCH AND FIBER

Breads certainly fill the bill for this guideline. Bread products are known for their starch content! Whole grain breads and bread products are also high in fiber.



AVOID TOO MUCH SUGAR

Similar to the guideline for fats, the type of bread or bread product selected is the key. Many breads have very little sugar. Specialty items such as coffee breads, sweet rolls, doughnuts and others will have extra sugar. Those specialty foods don't necessarily need to be avoided. However, do keep moderation in mind.

AVOID TOO MUCH SODIUM

The sodium content of most breads and bread products will be moderate to low. In some cases the sodium content will be higher because salt is added to the surface of the food — as on pretzels.

NUTRIENTS IN GRAIN PRODUCTS

Grain foods are a low cost source of vitamins and nutrients. For example:

Carbohydrate - Grains are a good source of the complex carbohydrate known as starch. Starch is an efficient source of energy. Since it is broken down and released more slowly than sugar, it is a steady source of fuel.

Fiber - Grains are rich in this non-digestible, non-caloric carbohydrate. Whole grain products provide fiber which adds bulk to diets. Fiber also helps keep the intestinal system running smoothly.

Protein - Grains are a source of incomplete protein. When grains are mixed and eaten together or with other protein sources, the protein becomes complete.

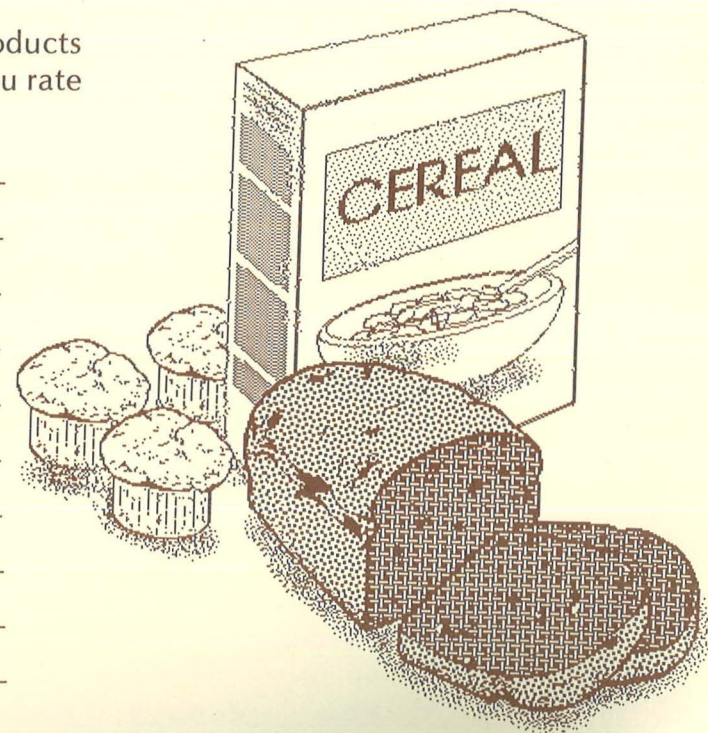
Thiamin, niacin and riboflavin - These essential B vitamins are important for the efficient use of carbohydrate, fat and protein by the body. They help to build a healthy nervous system and are important for growth. Enriched or whole grains are good sources of B vitamins.

Iron - Iron combines with protein to make hemoglobin. Hemoglobin is found in red blood cells. It carries oxygen to body cells and carbon dioxide away from body cells. Grains are a fair source of iron.

Other trace minerals - Many other trace minerals that are necessary for good health are found in grains.

HOW IMPORTANT ARE BREADS AND CEREAL PRODUCTS IN YOUR LIFE?

Think about the foods you ate yesterday. Write down all of the bread or cereal products you ate. Did you eat a good variety? Did you have four or more servings? How do you rate your intake of breads or cereals?



BREAD NUTRISearch

S D D S E J K D J D J K J F L U I J F J I D B
 F D O V I F T A F W O L S T A R C H U S N D D
 D F E R V N Z C I N E K D S M Y M L S A H E G
 S F D T B U I O U U S P U A F U U S U T J T U
 Q E F H S E G O E T P O I R D N K P E F Z L K
 D S D I O N J K W R J S E F N U E S E U S O O
 U B K A B B D S A I S D O P O F N C X E D S I
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 D S O J P R O T E I N O E D Y N N I E O P E M
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 D D D D W R L I D A D R O D H N O W Q E F N T
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 K O O E S I V J D I R I I D F H J I N P R T V
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 A I A D E E I S O I T O D E T Y I T R E U O D
 U T D E W C V D U E S V D E T R R C R D C N L

Answers are in the leader's manual.

PART 2. Learning about Grains

Please find these words in the puzzle:

Nutrient
 Iron
 Thiamin
 Riboflavin
 Niacin
 Vitamins
 Minerals
 Carbohydrate
 Starch
 Lowfat
 Fiber
 Protein
 Variety
 Nutrientdense

When you think of bread, many of you will think of wheat breads with an airy appearance and a light, crusty texture. But, bread hasn't always been that way.

The basic grain in breads of the past may have been barley not wheat. Corn, rye, and oat flour were other common grains used in breadmaking. Breads made with these grains were flat, shallow and chewier than today's wheat breads. In fact, before ovens it was natural to flatten balls of dough for easy baking on heated stones.

The main difference between wheat and other flours is the presence of gluten. Gluten is developed from the proteins in flour by kneading. It gives structure and elasticity to batters and doughs. It helps to capture the air bubbles made by yeast. Even the various forms of wheat flour have different levels of gluten.

LET'S EXPERIMENT

Gluten Balls

Materials Needed:

A variety of flours: rye, whole wheat, all-purpose wheat flour, cake flour, bread flour.

Water

Liquid and dry measuring cups

Mixing bowls, fork

Cheesecloth

Baking sheets

Directions:

1. Preheat oven to 400°F.
2. For each type of flour, measure 1/2 cup of selected flour into a mixing bowl. Add about 2 tablespoons water. With a fork mix in only enough water to form a stiff dough.
3. Knead dough about 10 minutes. Then place the dough in a bag made of a double thickness of cheesecloth.
4. Immerse the bag of dough in a mixing bowl of water. Work it between your fingers to squeeze the starch out. Change the water in the bowl often until the water remains clear and all of the starch has been worked out.
5. Remove the gluten from the bag. Squeeze out the extra water and form a ball.
6. Place the gluten balls on a greased baking sheet. Bake in oven for about 30 minutes or until firm.
7. Remove from oven. Notice the difference in size of the various balls. Complete the following chart with your observations.

GLOSSARY OF FLOUR



Type of flour	Observations during kneading and washing	Postbaked size

Which flour had the most gluten? _____

Which flour had the least gluten? _____

How could you tell the difference? _____

Which flours would be good to use by themselves for making yeast bread? _____

Barley - Contains some gluten-like protein but does not make good bread by itself. In baking recipes, substitute barley flour for 1/4 of the wheat flour.

Buckwheat - Not a true cereal grain and contains little gluten. In baking recipes, substitute buckwheat for 1/8 of the wheat flour. In pancakes, use in equal portions with wheat flour.

Corn - Cornmeal is more typical than a finely ground corn flour. Contains no gluten. In baking recipes, use in equal portions with wheat flour.

Oat - Can be made from rolled oats by blending 1 1/4 cup oats for 60 seconds to yield about 1 cup of oat flour. Contains little gluten. Substitute oat flour for up to 1/3 of wheat flour.

Rice - Contains no gluten. This flour is commonly used by persons who are allergic to wheat products because it lacks the proteins contained in wheat. Substitute 3/4 cup of rice flour for 1 cup of wheat flour.

Rye - Closely related to wheat. Flours are light, medium or dark. Contains gluten but it is much weaker than wheat gluten. A good blend of rye and wheat flours is 1/3 rye to 2/3 wheat.

Soy - Protein-rich but gluten-poor flour. In baking recipes it is used jointly with wheat and other flours. May have a higher fat content than other flours.

Wheat - Traditionally the main flour in bread baking. Gluten content is high. Various types of wheat flour are available.

THE WHEAT KERNEL

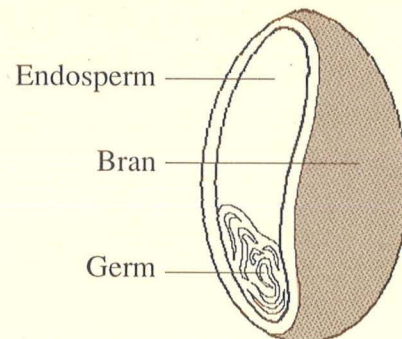
Since wheat is the most common grain used for flours, a closer look at the wheat kernel will help you understand its baking characteristics.

There are three parts to the wheat kernel. The **endosperm** is the largest portion. Processed or refined wheat is made of the

starchy endosperm. The result is white flour.

Bran is the outer covering of the wheat kernel. Whole wheat flour contains the bran portion of the kernel. The presence of bran increases the fiber content of the flour. Fiber adds bulk to our diet.

The **germ** of the wheat kernel is very small. In spite of its size the germ contains vitamins and some fat. It is the sprouting part of the kernel. The fat in wheat germ limits its shelf life. Since the germ is present in whole wheat flour, it will keep better if stored in the refrigerator or freezer in a tight container.



Hard wheat and soft wheat differ in their protein content. Hard wheat flour is used primarily for yeast breads because it has a high protein and gluten content. It will give the bread more structure. Durum wheat, which is the hardest wheat, is used to make pasta products such as noodles, spaghetti, and macaroni. Soft wheats are lower in protein. Soft wheat flours are ideal for cakes, pastries and flat breads.

As you bake, the recipe may call for all-purpose, bread, cake, self-rising or whole wheat flour.

All-purpose flour is a blend of flours from hard and soft wheats from which the bran and germ have been separated. Enriched all-purpose flour contains added iron and B vitamins that equal that found in whole wheat flour. All-purpose flour also may be bleached or unbleached. **Bleached all-purpose flour** has been treated with chlorine to improve its baking quality and reduce the risk of spoilage or contamination. **Unbleached flour** is nutritionally equal to bleached flour. It has not been treated with chlorine and has an off-white color. All-purpose flour is truly a general purpose product. It can be used successfully for making yeast breads, cakes, cookies, pastries, and quick breads.

Bread flour is used by commercial bakeries but also can be found in grocery stores for home use. Because it has more gluten, it is especially good for making yeast breads.

Cake flour is made from softer wheat so it has less gluten. It is especially useful in baking cakes, pastries or cookies that require a delicate, light structure.

Self-rising flour is all-purpose flour that has salt and baking powder added. (Each cup of self-rising flour contains 1 1/2 teaspoon baking powder and 1/2 teaspoon salt.) If you use it in cake and cookies recipes, make adjustments for the leavening agent and salt. It generally is not recommended for making yeast breads because the leavening interferes with the yeast's rising action.

Whole wheat flour is a coarsely textured flour ground from the entire wheat kernel. The wheat bran, germ and endosperm are all present in this flour. The bran in whole wheat flour will interfere with gluten development. The result is less rising power. Breads made with whole wheat flour tend to be heavier and denser than those made from white flour. **Graham flour** is another name for whole wheat flour. **Stone ground flour** is whole wheat flour that has been ground between heavy stones.

KEEP WHOLE GRAIN FLOURS REFRIGERATED

Whole grain flours which contain the germ have more oil in them. The oil may turn rancid. The best storage place for these flours is in airtight containers in the refrigerator or freezer.

Before using in bread making, let refrigerated flours warm to room temperature. This will give yeast a better chance to grow.

CONSUMER ACTIVITY - LABELS

Take a trip to the grocery store and visit the bread aisle. How many different kinds of breads can you find? Check the nutrition labels on the following products: white bread, 100% whole wheat bread, wheat bread, croissant rolls (if available), English muffins and rye bread. Complete the following chart.

	First Ingredient	Cal/ serving	Carbo- hydrate g	Fat g	Protein g	Fiber g	Nutrient(s) with greatest % USRDA	Nutrient(s) with least % USRDA
White bread								
100% whole wheat bread								
Wheat bread								
Croissant rolls								
English muffins plain								
Rye bread								

What choice(s) would be good if you wanted to increase fiber in your diet? _____

What choice(s) would fit into a low to moderate fat diet? _____

LET'S TEST YOUR FLOUR IQ

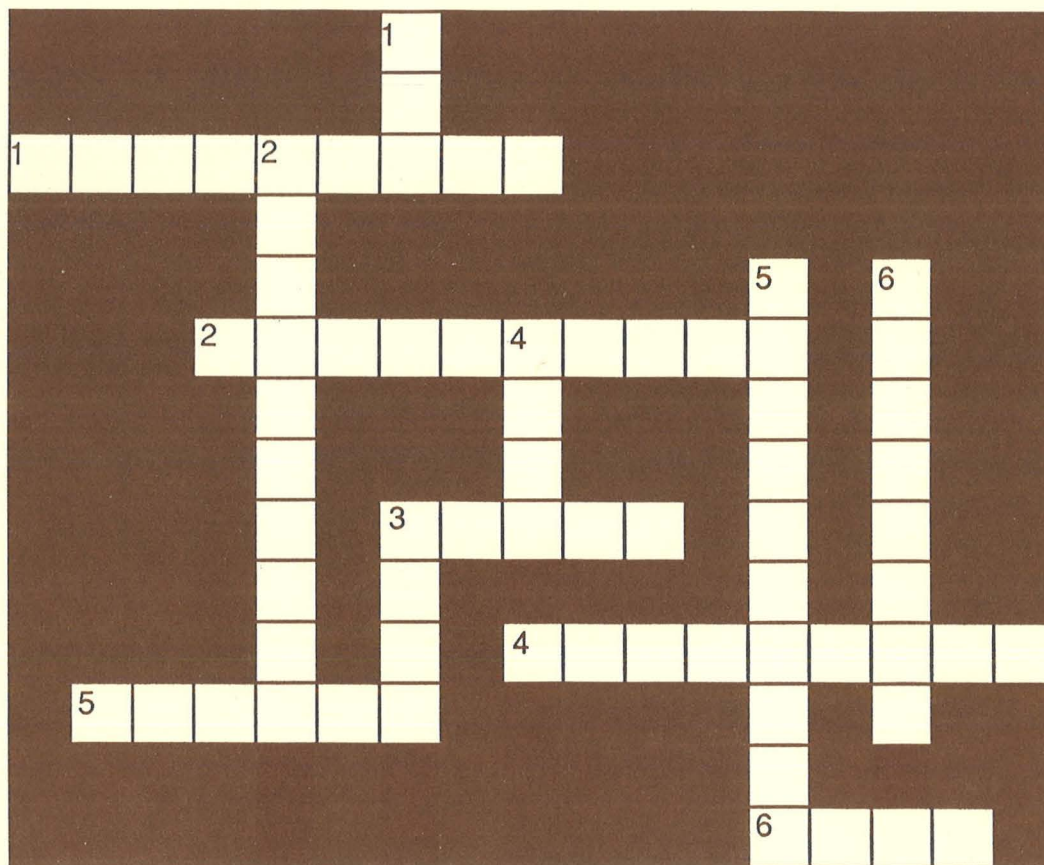
Complete the cross word puzzle below by identifying the word that matches each statement.

Across

1. Not a true cereal grain
2. Wheat flour with bran and germ removed
3. Wheat flour with a high gluten content
4. Major, starchy part of grain kernel
5. Responsible for structure and elasticity
6. Sprouting section of kernel

Down

1. Flour that can be either light, medium or dark
2. Flour made from the entire wheat kernel
3. Grain part that contains fiber
4. Commonly used in wheat allergy recipes
5. Flour that has salt and leavening added
6. Flour that has been treated with chlorine



Answers are in the Leader's manual.

PART 3. Becoming Acquainted with Yeast Bread Ingredients

The essentials for yeast breads are yeast, wheat flour and liquid. Sugar, salt, fat and eggs are commonly added for flavor and texture. In addition, other flours may be used in combination with wheat flour to make many different varieties of bread. As with any baking project, each ingredient in yeast bread has a function. Here's what they do:

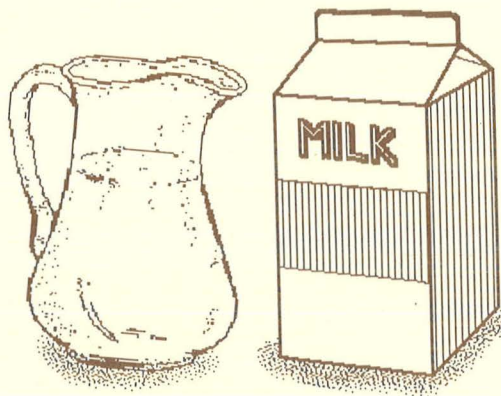


Yeast is a living plant. It feeds on sugar in the dough to produce carbon dioxide and alcohol. The carbon dioxide causes the dough to rise. The alcohol is vaporized during baking. Yeast is responsible for the characteristic taste and aroma of bread.

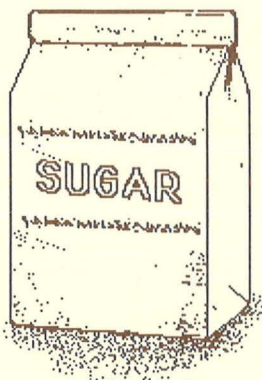


Wheat flour provides structure and elasticity to bread dough because of the presence

of gluten. As gas bubbles are formed by the yeast, they are caught in the elastic structure of the dough.



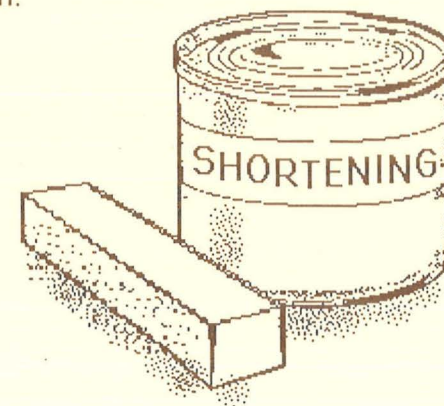
Liquid is typically plain water, potato water or milk. Water usually makes the bread more crusty. Milk produces a softer crust. The temperature of the liquid is critical when mixing the dough. If the temperature is too cold, yeast will not grow well. If too hot, the yeast will be killed.



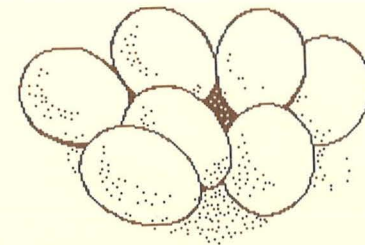
Sugar is food for the yeast. It adds flavor and sweetness to the bread. Sugar also helps the crust brown during baking. White sugar, brown sugar, molasses or honey can all be used in bread recipes.



Salt helps control the action of the yeast. Yeast breads made without salt rise too quickly and taste flat. The texture is uneven.



Fat, when used, will tenderize the bread crumb. But if too much fat is used it will interfere with gluten formation and affect the structure of the dough. Margarine, butter, vegetable oils and vegetable shortenings are commonly used fats.



Eggs will add flavor, color and a softer crumb to breads. If eggs are used the crust will be more tender.

LET'S EXPERIMENT - What Happens to Yeast When . . .

Experiment 1

Materials Needed: Regular dry yeast, all-purpose flour, granulated sugar, salt, water, milk, five small containers, measuring cups, mixing spoons and measuring spoons. (ALL LIQUIDS IN THIS EXPERIMENT SHOULD BE BETWEEN 105 - 115°F. Use a cooking thermometer to check temperature. Or you can use a microwave oven with a thermometer cooking probe, if available, to heat the water.)

Directions:

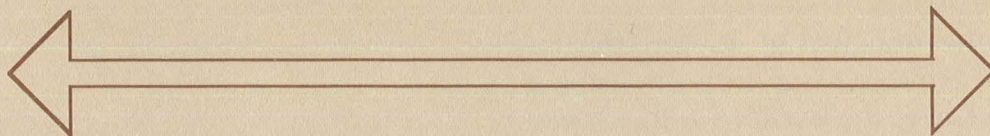
1. In small containers, blend the following mixtures:
 - a. 1/2 cup warm water and 1 teaspoon dry yeast
 - b. 1/3 cup warm water, 1 teaspoon flour, 1 teaspoon dry yeast
 - c. 1/3 cup warm water, 1 teaspoon sugar, 1 teaspoon dry yeast
 - d. 1/3 cup warm water, 1 teaspoon salt, 1 teaspoon dry yeast
 - e. 1/3 cup warm milk and 1 teaspoon dry yeast
2. Allow the mixtures to stand. Observe the yeast's action for 5 minutes.
3. What mixtures have slow yeast action? _____
What mixtures have fast yeast action? _____
What mixtures would be good to use in making yeast bread? _____

Experiment 2

Materials Needed: Dry yeast, sugar, water, four clean bottles, four balloons, measuring spoons, masking tape.

Directions:

1. Label the bottles from A to D using masking tape and a pen.
2. In each bottle put 1 teaspoon sugar and 1 teaspoon yeast.
3. To each bottle add one of the following:
 - a. 2 tablespoons of ice water
 - b. 2 tablespoons of ice water
 - c. 2 tablespoons of warm water - 105 - 115°F
 - d. 2 tablespoons of boiling water
4. Cover the bottles with the balloons. Rock gently back and forth to mix the ingredients.
5. Place bottle A in the refrigerator. Place bottles B, C and D at room temperature. Let stand for 30 minutes.
6. At the end of 30 minutes, rank the bottles according to yeast activity by placing them on the line in their appropriate spots. The larger the balloon the greater the yeast activity since more carbon dioxide was produced.



Most yeast activity

Least yeast activity

Why was there more yeast activity in some bottles than others?

**LET'S BAKE -
Conventional Yeast Breads**

**Conventional Bread Dough
Preparation Techniques**

1. **Yeast** is softened in warm water (105 - 115°F).
2. **Other added liquids** are never warmer than lukewarm or the yeast may be killed.
3. **Flour** is added gradually. About half the flour may be added at first. Beat until smooth. The remaining flour is added only until the dough begins to pull away from the sides of the bowl in a mass. The dough will be slightly sticky to handle. It is now ready for kneading.

Note: The amount of flour may vary with weather conditions such as the amount of moisture in the air.

4. **Kneading** makes the dough come alive. The dough will change from a rough, sticky ball to a smooth, elastic ball. Kneading develops the gluten strands within the dough. To knead:
 - a. Rub a little flour on your hands and on the kneading board.
 - b. Press dough flat on the board.
 - c. Pick up the edge of dough farthest from you. Fold it over to the edge closest to you.

- d. Using the heel of your hands, push gently on the dough with a rock and roll motion.
- e. Using both hands, turn the dough one-fourth turn. Repeat the folding, pushing and turning action until the dough is smooth and elastic. This may take 10 minutes.

Hint: DO NOT KEEP HANDS ON DOUGH. PUSH AND LET UP AS YOU KNEAD.

- f. If dough gets sticky, use more flour on your hands and the board. ONLY USE FLOUR IF NECESSARY. If too much flour is used, the bread will be heavy and coarse.
 - g. When dough is smooth like a rubber ball and no longer sticking to your hands or board, it is ready to be placed in a bowl. Form a ball and let it rest while you lightly grease a bowl. Place the ball, top down, in the greased bowl. Turn the dough over so the greased top is up. Cover the bowl with a clean towel and let it rise.
5. **Rising** is when yeast is at work. The dough changes from a small, firm ball to a big, light, puffy ball. The best temperature for dough to rise in is 80-85°F. To provide even warmth to your dough, set the covered bowl of dough in a draft-free place. Be careful not to set it too close to a heat source or it will be too warm.

Test for end of rising time when the ball of dough is about twice its original size. Recipes often say "doubled in bulk." Press two fingers lightly and quickly into the dough about 1/2 inch. If the dent stays when you pull your fingers out the dough is light enough. If the dent fills in, cover the dough again and let it rest for another 15 minutes. Test again with your fingers.

6. **Punch down** the dough when it is ready. Gently push your fist into the center of the dough. Pull the edges of dough to the center and reform a ball. Turn the ball so the bottom is up.

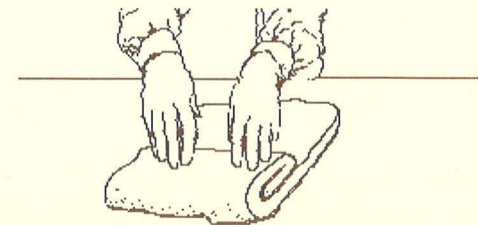


7. **Rest** the dough. Cut it into the required number of portions by using a knife. Cover the portions with a towel and let them rest for 5 to 10 minutes. Resting allows the dough to relax so you can shape it more easily.

8. Shape the bread loaves by using one of these methods:

Rolling method. Use a rolling pin to roll the dough into a 10" x 7" rectangle. Use gentle, firm motions to

remove the gas bubbles in the dough. Starting at the upper short side, firmly roll the dough toward you. Seal ends with your thumbs or heel of hand. Tuck the sealed ends under the loaf. Place in a greased pan with the seam side at the bottom of the pan.



TIPS FOR YEAST BREADS

- Bread will rise during the first 8 - 10 minutes of baking. This is called oven spring.
- Correct pan size is important. Too large a pan will cause a lower, less attractive loaf. Too small a pan will cause the bread to "grow" out of the pan as it bakes. Use the pan size given in your recipe.
- Whole grain dough is more compact. Oven temperatures are usually reduced by 25 degrees. Longer baking times may be recommended for whole grain loaves. Recipes using whole grain flours are already adjusted for temperature and baking time.
- Sifting is not necessary when making yeast breads. Stirring the flour with a spoon before measuring is enough.
- Some yeast bread recipes call for scalded milk. When people used raw milk it needed to be scalded because it contained an enzyme that caused the bread to be gummy. Pasteurized, dried and evaporated milks do not need to be scalded because the enzyme has already been destroyed. However, to help with yeast action, you will need to heat milk to lukewarm (105 - 115°F) before you combine it with the yeast.
- An even oven temperature helps to make a good yeast bread product. Therefore, preheat your oven for about 10 minutes before baking bread.

Enzymes are protein substances that can bring about changes in other substances without being changed themselves.

Patting method. Flatten the dough with your hands into an oblong about 9" by 7". Fold the short ends of the oblong to the center so that they overlap. Press each side down firmly. Pinch the center and end seams together. Place in a greased pan with the seam side at the bottom.

9. **Pan rise (or proof)** the loaf after you have placed it in the bread loaf pan. The dough should rise again until doubled in size. To test for lightness, press lightly with one finger at the edge of the bread. If a small dent remains, the bread has risen enough and is ready for baking.
10. **Bake** your bread on the lower shelf of your oven. The oven should be preheated to the recommended temperature for even heat. At the end of the baking time, remove the pan from the oven. Tip the loaf of bread out of the pan and tap it lightly. A hollow sound indicates the bread is done. If not done, return the bread to the pan and oven. Bake a few minutes longer, then test again.
11. **Cool** the bread by removing it from the pan and placing it on a wire rack. When cooled, place the loaf in a plastic bag and seal.

QUIZ TIME

Fill in the blanks to complete the statements below.

1. _____ is the rising that occurs in the first 8 - 10 minutes of baking.
2. Pan rising or _____ is when the shaped loaf of bread is allowed to rise before baking.
3. When dough is gently pulled into shape with your hands you are using the _____ method for shaping dough into a loaf.
4. Kneading and shaping dough are easier if the dough is allowed to sit for 5-10 minutes to _____.
5. Yeast dough will rise more quickly in a _____ and _____ environment.
6. _____ is when you push your fist gently into the center of the dough to help release gas bubbles.
7. Working dough in a rhythmic pushing, folding and turning action is _____.
8. _____ means the ball of dough is twice as big as it was at first.
9. As yeast grows and ferments it produces _____ and _____.
10. The gas bubbles produced by yeast are caught in the _____ structure of the bread dough and cause it to rise.

WHOLE WHEAT BREAD

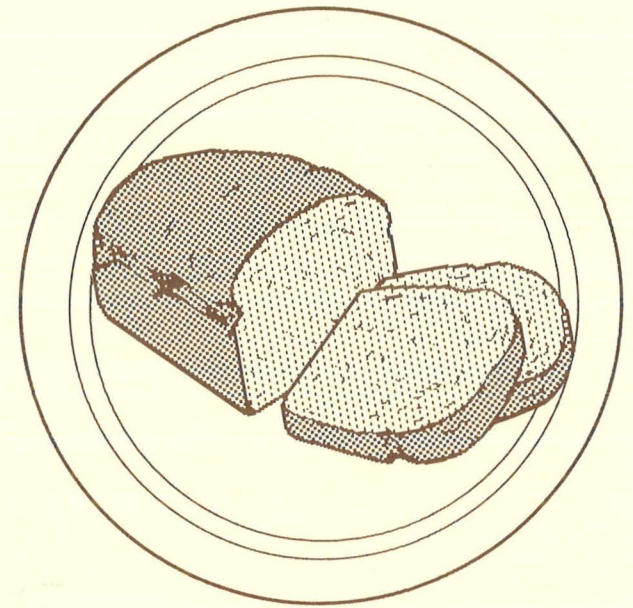
2 loaves

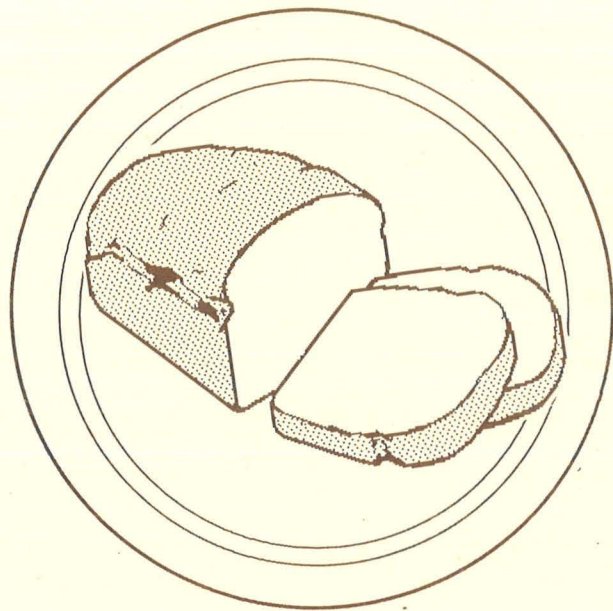
Ingredients:

1 package active dry yeast	1 teaspoon salt
1/4 cup lukewarm water (105 - 115°F)	2 tablespoons oil
2 cups milk	3 cups whole wheat flour, mixed with
2 tablespoons brown sugar	3 cups all-purpose flour

Directions:

1. Dissolve yeast in lukewarm water.
2. Heat milk, brown sugar, salt and oil until sugar dissolves. Cool to lukewarm.
3. Combine yeast with milk mixture in a large bowl. Add about one-half of the flour. Stir mixture until smooth.
4. Mix in remaining flour until dough comes away from side of bowl. Turn dough out onto floured surface and let rest for 5 - 10 minutes. While it rests, clean the bowl and grease it lightly.
5. Knead dough until smooth and elastic - about 10 minutes. Form into a ball.
6. Place dough in greased bowl. Turn dough so greased surface is on top. Cover with clean towel and let rise in a warm, draft-free place until doubled in bulk, about 1 to 1 1/2 hours.
7. Punch down dough and place on floured surface. Cut in half; form into balls and let rest for 5 - 10 minutes. Shape the balls into loaves and place into greased 8x4 inch loaf pans.
8. Cover loaf pans and let bread rise until doubled in bulk, about 1 hour.
9. Bake in preheated 350°F oven on lower shelf for 45-50 minutes. When done, the bread will sound hollow when tapped. Remove from pans immediately; cool on wire rack.





WHITE BREAD

2 loaves

Ingredients

1 package active dry yeast	2 tablespoons sugar
1/4 cup warm water (105 - 115°F)	1 tablespoon vegetable oil
2 cups milk	7 cups all-purpose flour (approximately)
2 teaspoons salt	

Directions:

1. Dissolve yeast in warm water.
2. Heat milk, salt, sugar and oil together until sugar dissolves. Cool to lukewarm (no more than 115°F).
3. Pour lukewarm milk mixture into large mixing bowl. Add 2 cups of flour and stir to remove lumps.
4. Add softened yeast and stir to distribute yeast throughout the batter.
5. Gradually add remaining flour until dough begins to pull away from the sides of the bowl.
6. Turn out onto floured surface; knead dough. While kneading, add only enough flour to make a firm but soft dough. Continue kneading until dough is smooth and elastic. This will take about 10 minutes.
7. Shape dough into a ball and place it into a large greased bowl. Turn the ball to leave greased side up. Cover with a clean towel.
8. Let rise in a warm, draft-free place until doubled in bulk, about 1 hour.

9. Punch down; turn onto lightly floured surface. Cut dough in half with a knife. Form into two smooth balls, cover and let rest for 10 minutes.
10. Grease two 8x4 inch loaf pans. Shape dough into loaves and place in pans. Cover and let rise in warm place till doubled in bulk, about 1 hour.
11. Preheat oven to 375°F for about 10 minutes. When bread is ready, place on lower rack in oven and bake about 1 hour. When done, bread should be brown and sound hollow when tapped on the bottom and sides.
12. Remove bread from loaf pans; cool on wire rack.

KNOWING QUALITY WHEN YOU SEE IT!

Whether you make conventional white bread or try mixing different kinds of flour into whole grain bread and rolls, there are some signs of quality to look for. Using whole grain flours will change the color, flavor and texture of baked products. In spite of those differences, consider these points when judging baked products.

Appearance and Crust:

All bread

- Evenly rounded top
- Even in size—no bulges or bumps
- Stretch marks on the sides. (Breads made with bread flour, a high protein flour, will have a “break and shred” between top and sides of the loaf. This is about a

1/2” strip of finely shredded surface. There should not be a sharp break.)
 -Crust is crisp but tender
 -Even color all over

Whole grain bread

- Crust may be slightly thicker than in white breads but it will be tender
- Even, darker color throughout bread
- Don’t expect a “break” between top and sides of bread.

Inside color and texture:

All bread

- Even color throughout—typical of the grain flour used
- No light or dark streaks
- Small, even holes throughout bread
- Tender, moist crumb

Whole grain bread

- More compact, coarser and heavier than white bread
- Even texture, not crumbly

Flavor and aroma:

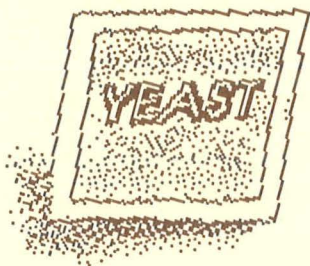
All bread

- Typical nutty, yeast flavor
- Additional fruit, nuts and other seasonings should not overpower
- Not rancid or stale

Whole grain bread

- Rich, full flavor of grain
- Slightly stronger flavor than white bread

PART 4. Making Yeast Breads in Other Ways



No one knows for sure who made the first bread but its place in history is well established.

- Today whole grain breads are promoted for variety, flavor and fiber value. However, in history, white breads have been favored. White bread was believed to be free of dirt and other impurities that might come from the millwheel. Dark breads were reserved for peasants or the city poor. In Rome the phrase, "to know the color of one's bread," meant you knew your social standing.
- Bread has often been used as a symbol for money. And "breadwinner" is another name for the family provider.
- The word, bread, has often been used to represent all food.
- In United States history, the Capitol building in Washington, D.C. was turned into a bakery during the Civil War. To feed the troops, ovens were set up in the

Senate wing and 16,000 loaves of bread were baked daily.

- In frontier forts, soldiers were allowed daily rations of bread - one loaf of bread per soldier. Bread was often used to bargain for other items.
- Hot cross buns were often hung in kitchens as lucky charms.

Probably the earliest yeast breads were the **batter breads**. This type of bread is not kneaded. The batter has more liquid in it than in typical yeast breads. It is mixed, allowed to rise, stirred down and then baked. Batter breads have a coarse texture and a pebbled surface. They are best eaten soon after baking.

Another early method for breadmaking was the **sponge method**. Yeast is mixed with a liquid, some flour and sugar to make a batter. It is then covered and set aside in a warm place to make a bubbly, spongy mixture. To finish the bread, sugar, salt, fat and more flour are added. This method was probably popular in your great grandparent's day because the quality of the yeast was uncertain. Making a sponge mixture to start the bread gave a chance to see if the yeast was working.

YEAST

Today, the yeast we buy at the store produces a high quality bread. It has been selected from the many different varieties of yeast present in our environment. Let's examine them closer.

Active dry yeast is dried and vacuum-packed in small packets and stays fresh for up to six months without refrigeration. If purchased in a larger jar, the yeast will need to be refrigerated after the container is opened.

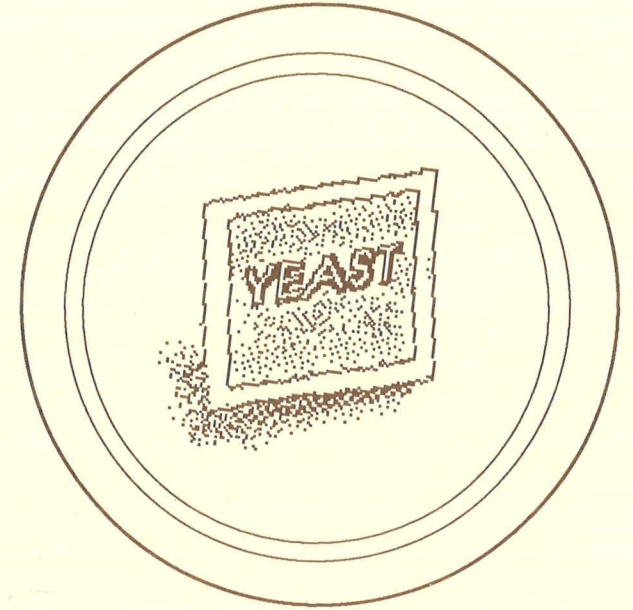
Compressed yeast is a mixture of starch and yeast. It is a moist product and must be kept in the refrigerator. Compressed yeast comes wrapped in foil.

Quick-rising yeast is a new yeast that has quicker action than regular dry yeast. The yeast is less sensitive to temperature so it may be easier to make a foolproof recipe. Quick-rising yeast can be used in any recipe that calls for active dry yeast. The rising time will be cut in half. For best results with the quick-rising yeast, use this mixing method:

1. Add undissolved yeast to most of the dry ingredients.
2. Add hot liquid (125 - 130°F).
3. Finish mixing and kneading the dough.
4. Cover and let the dough rest for 10 minutes.
5. Shape dough (or stir down if a batter dough) and place in baking pan.
6. Cover and let rise until doubled in size (about half of normal rising time).
7. Bake as directed.

WORKING WITH YEAST

- Proper temperature of the ingredients is critical for yeast growth. A thermometer is the only accurate way to check the temperature of liquids. If a thermometer isn't available, test the temperature by placing a drop of liquid on your wrist. It should feel only warm not hot.
- Always note the dates stamped on packages of yeast. Yeast which is older than its expiration date may be less active.
- Yeast breads usually bake best at oven temperatures between 375 - 425°F. If the oven temperature is too low, the yeast will work too long and the bread will be over-fermented. It will have a coarse texture. If the temperature in the oven is too high, the bread will brown too quickly, before the inside is fully baked.
- Because quick-rising yeast is less sensitive to temperature, hotter liquids (125 - 130°F) than normal can be used to mix the dough.



LET'S EXPERIMENT -

What Oven Temperature Should I Use?

Materials Needed: 4 small loaves of bread that are ready to be baked (use the conventional white bread recipe in this manual or try commercially made frozen bread dough), baking pans, at least three ovens.

Directions:

1. Bake one loaf at 300°F for time indicated in recipe.
2. Bake one loaf at 475°F for time indicated in recipe.
3. Bake one loaf of bread in an oven that has not been preheated. Bake at the temperature and time indicated in recipe.
4. Bake one loaf of bread in an oven preheated to the temperature recommended in Step 3. Bake for time indicated in recipe.
5. List your observations in the following chart.

	Size	Texture	Flavor
300°F loaf			
475°F loaf			
Regular, not preheated			
Regular, preheated			

Write a descriptive statement about the results of your experiment here. What are your recommendations for baking bread in an oven?

WHOLE WHEAT KNEADLESS BREAD

1 loaf

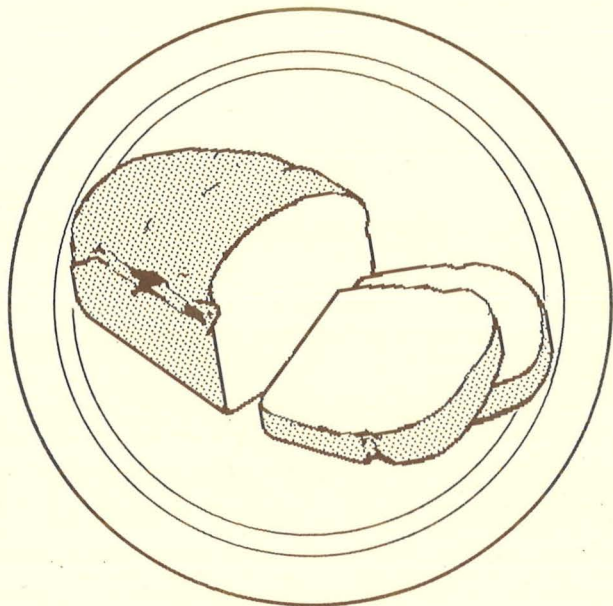
This is a batter bread recipe. See how you like it.

Ingredients

1 1/2 cups all-purpose flour, mixed with	1 package active dry yeast
1 1/2 cups whole wheat flour	3/4 cup water
2 tablespoons sugar	1/2 cup milk
1 teaspoon salt	2 tablespoons oil

Directions

1. Combine flours. Then mix 1 1/2 cups flour mixture, sugar, salt and dry yeast in a large bowl.
2. Heat water, milk and oil in a saucepan until temperature is very warm (between 120 - 130°F).
3. Slowly add warm liquids to flour mixture. Beat at low speed with an electric mixer until thoroughly moistened. Scrape bowl often.
4. Add 1/2 cup more flour mixture. Beat at medium speed for 3 minutes.
5. By hand, stir in just enough flour to form a stiff batter.
6. Cover with a clean towel; let rise in a warm place until doubled in bulk, about 50-60 minutes.
7. Preheat oven to 375°F. Grease a 9x5 inch loaf pan.
8. Stir down batter. Spoon batter into greased pan. Smooth out top of loaf by patting it with a floured hand.
9. Bake for 45-50 minutes. When done, loaf will sound hollow when tapped.
10. Remove from pan; cool on wire rack.



WHOLE WHEAT BREAD (SPONGE METHOD)

2 loaves

Ingredients

1 package active dry yeast	2 teaspoons salt
1 1/2 cups warm water (105 - 115°F)	1/2 cup hot water (130°F)
2 cups all-purpose flour	1/4 cup brown sugar
2 tablespoons sugar	3 tablespoons oil
	4 cups whole wheat flour

Directions

1. In large mixing bowl, dissolve yeast in warm water. Add all-purpose flour and 2 tablespoons sugar. Beat until smooth. Cover with clean towel. Let rise in warm place until bubbly, about 1 hour.
2. Mix 2 teaspoons salt, hot water, brown sugar and oil. Stir to dissolve sugar. Cool to lukewarm (105°F). Add to bubbly yeast mixture.
3. Add enough whole wheat flour to make a moderately stiff dough. Turn onto lightly floured board; knead until smooth and elastic, about 10 minutes.
4. Form into a ball and place in a greased bowl. Turn dough so greased surface is on top. Cover; let rise in warm, draft-free place until light and dough retains finger imprint. This will take about one hour.
5. Punch down and turn out onto floured surface. Cut in half and form into two smooth balls. Cover and let rest for 15 minutes.
6. Grease two 8x4 inch loaf pans. Shape each ball into a loaf and place in greased pan. Let rise in loaf pan until doubled in size, about 1 hour.
7. Bake bread on lower shelf of preheated 350°F oven for 1 hour, or until done. Remove from pans and cool on rack.

WHITE BREAD (SPONGE METHOD)

2 loaves

Ingredients

1 package active dry yeast	1 cup milk
1 cup warm water (105 - 115°F)	2 tablespoons oil
2 cups all-purpose flour	2 tablespoons sugar
1 teaspoon sugar	2 teaspoons salt
	4 cups all-purpose flour

Directions

1. In large mixing bowl, dissolve yeast in warm water. Add 2 cups all-purpose flour and 1 teaspoon sugar. Beat until smooth. Cover with clean towel. Let rise in warm place until bubbly, about 1 hour.
2. Heat milk, oil, 2 tablespoons sugar and salt. Stir to dissolve sugar. Cool to lukewarm (105°F). Add to bubbly yeast mixture.
3. Add enough all-purpose flour to make a moderately stiff dough. Turn onto lightly floured board; knead until smooth and elastic, about 10 minutes.
4. Form into a ball and place in a greased bowl. Turn dough so greased surface is on top. Cover; let rise in warm, draft-free place until light and dough retains finger imprint. This will take about one hour.
5. Punch down and turn out onto floured surface. Cut in half and form into two smooth balls. Cover and let rest for 10 minutes.
6. Grease two 8x4 inch loaf pans. Shape each ball into a loaf and place in greased pan. Let rise in loaf pan until doubled in size, about 45 minutes to 1 hour.
7. Bake bread on lower shelf of preheated 375°F oven for 45 minutes, or until done. Remove from pans and cool on rack.

CASSEROLE SWEDISH RYE

1 loaf

This recipe is shared with you from the Washington State University 4-H Program. The rye flour and caraway seed in this recipe give it a special flavor. This is another batter bread recipe.

Ingredients

3 1/2 to 4 cups unsifted white flour	1 teaspoon caraway seed
1 1/2 cups unsifted rye flour	2 packages active dry yeast
1/3 cup firmly-packed dark brown sugar	1 cup milk
2 teaspoons salt	1 cup water
	2 tablespoons margarine

Directions

1. Combine flours. In a large bowl, thoroughly mix 1 1/2 cups flour mixture, sugar, salt, caraway seed and undissolved active dry yeast.
2. Combine milk, water, and margarine in saucepan. Heat over low heat until liquids are very warm (120 - 130°F). Margarine does not need to melt.
3. Gradually add to dry ingredients and beat 2 minutes at medium speed with an electric mixer, scraping bowl occasionally. Add 3/4 cup flour mixture. Beat at high speed 2 minutes, scraping bowl occasionally.
4. Stir in enough additional flour mixture to make a stiff dough. (If necessary, use additional white flour to obtain desired stiffness.)
5. Cover; let rise in a warm place, free from draft, until doubled in bulk, about 40 minutes.
6. Stir dough down. Turn into a well-greased 1 1/2 quart casserole. Cover; let rise again until doubled in bulk, 20 minutes.
7. Bake at 400°F about 40 minutes, or until done. Remove from casserole and cool on wire rack.

PART 5. More on Making Yeast Breads

Sometimes we just want an easier way to make bread. Or we want to bake it at a more convenient time. Let's imagine you can mix, knead, rise and bake bread or rolls in just 60 minutes. Perhaps you'd rather make your dough now but bake it when you are having company two days later. Can you do it? Read on for the details.

Rapidmix is one method of mixing the undissolved yeast with dry ingredients. It eliminates the step of dissolving the yeast in warm water first. Because the yeast is mixed with the other dry ingredients, you can use a warmer liquid (120 - 130°F) when you mix the dough. The warmer liquid helps the dough to rise faster. This method also makes it easier to blend the yeast with the other ingredients and reduce the chance of lumps. The dough will be lighter and have more spring as you knead it. To further speed your bread making use the quick-rising yeast.

Refrigerator and Coolrise doughs can be made ahead and refrigerated until needed. *Refrigerator* doughs are mixed and kneaded before refrigeration. They may be kept refrigerated for two or three days before using. These doughs are then taken from the refrigerator, shaped, and allowed to

rise before baking. Most yeast doughs can become a refrigerator dough.

Coolrise doughs are mixed, kneaded and shaped before they are refrigerated. If done correctly, they will rise in the refrigerator and can be used any time from two to 24 hours later. When ready to bake, remove the panned bread or rolls from the refrigerator and place in oven without further rising time.

Frozen dough can be convenient. You can make dough ahead and freeze it for up to four weeks before using. Mix, knead and shape the dough without letting it rise. Cover the dough and freeze it. When frozen, place it in plastic freezer bags and leave in your freezer. When ready to use, let the dough rise before you bake it.

LET'S EXPERIMENT -

To Knead or Not to Knead? To Rise or Not to Rise?

Some of you may be thinking that kneading is a lot of work and it sure takes a lot of time. What would happen if you changed the kneading time?

Letting bread rise also takes time. Do you think you could get by with less rising time? What happens if you forget your bread dough and let it rise too long?

Materials: One recipe of Rapid Mix rolls, baking pans.

Directions

1. Make the Rapid Mix Rolls recipe.
2. After mixing the dough divide it into 5 equal portions. Test the following situations:
 - A. Knead dough for only 1 minute; let rise for recommended time; finish steps 7-8.
 - B. Knead dough for the recommended time of 5 minutes; let rise for recommended time; finish steps 7-8.

- C. Knead dough for 10 minutes, twice the recommended time; let rise for recommended time; finish steps 7-8.
 - D. Knead dough for recommended time but do not allow to rise after kneading or shaping rolls; bake as directed.
 - E. Knead dough for recommended time; let rise for 20 minutes (twice the recommended time); shape rolls and allow to rise for another 30 minutes; bake.
3. When finished, answer the following questions:

Looking at rolls A, B and C, how did kneading affect the size, texture and tenderness of the rolls?

Looking at rolls B, D and E, how did the rising time affect the size texture and tenderness of the rolls?

What conclusion can you make from your experiment?

RAPID MIX ROLLS
2 dozen rolls

Ingredients

4 cups all-purpose flour	1 cup milk
3 tablespoons sugar	1/2 cup water
1 teaspoon salt	1/4 cup margarine
2 packages active dry yeast	

Directions

1. Mix 1 1/2 cups flour, sugar, salt and dry yeast in a large mixing bowl.
2. Heat milk, water and margarine until warm (120 - 130°F).
3. Gradually add milk mixture to dry ingredients. Beat 2 minutes at medium speed with an electric mixer. Scrape bowl.
4. Add 1/2 cup flour and beat at high speed for 2 more minutes.
5. Stir in enough additional flour to make a soft dough. Turn out onto lightly floured board. Knead for 5 minutes.
6. Place dough in greased bowl. Turn so that greased side is on top. Cover and let rise in a pan of warm water (100°F) for 15 minutes.
7. Punch down and turn out onto floured board. Form into smooth ball and let rest for 5 minutes. Shape into rolls and place on baking pans. Cover and let rise in warm place for 15 minutes. Preheat oven to 425°F.
8. Bake in preheated oven about 10 - 12 minutes or until done. Remove from baking pans and cool on wire racks.

LET'S REVIEW

Match the following terms with the definition that best describes it. Check the answers with your leader or parent.

1. _____ Mixing the undissolved dry yeast with the dry ingredients.
 2. _____ Mixing, kneading and shaping the dough before refrigerating; rising takes place in the refrigerator.
 3. _____ Making a batter of yeast, liquid, flour and sugar and letting it sit until it becomes bubbly.
 4. _____ Softening the yeast in warm water; then adding other liquid and dry ingredients.
 5. _____ Bread making in which the bread mixture is not kneaded; it is simply stirred down with a spoon. Uses more liquid than most bread methods.
- a. Conventional method
 - b. Rapid Mix method
 - c. Sponge method
 - d. Batter method
 - e. Coolrise method

RECIPES - Use some of the described methods in this unit to make the following recipes. Which one is your favorite?

BREAD PRETZELS 12 large pretzels

Ingredients

- | | |
|------------------------------|--|
| 1 package active dry yeast | 1 cup very warm water
(120 - 130°F) |
| 2 3/4 cups all-purpose flour | 5 teaspoons baking soda |
| 1/2 teaspoon salt | 4 cups water |
| 1 tablespoon sugar | |
| 2 tablespoons margarine | |

Directions

1. In a large bowl, mix the yeast, 1 1/2 cups all-purpose flour, salt and sugar.
2. Heat margarine and 1 cup water to approximately 120 - 130°F. Gradually add to dry ingredients. Beat 2 minutes at medium speed with an electric mixer. Scrape bowl occasionally.
3. Add approximately 1 1/4 cup of remaining flour until dough is moderately stiff. Turn out on floured surface.
4. Knead until the dough loses its stickiness and is smooth.
5. Place in a greased bowl; turn dough so that greased surface is on top. Cover and let rise until doubled in bulk.
6. Punch down; cut into 12 evenly sized pieces. Shape into smooth ball and let rest for 5 minutes.
7. With your palms, roll each ball into 18-inch lengths. The dough should be about pencil-thick and slightly tapered on the ends. Loop into a twisted oval and place on a greased baking sheet. Let rise until almost doubled.

8. Close to the end of the rising time, place 4 cups water and baking soda in a non-aluminum pan. Heat to boiling. Preheat oven to 475°F.
9. After rising is completed, carefully lower the pretzels into the boiling water with a slotted spoon. Leave in the water for about 1 minute or until the pretzel floats to the top. Remove from water and return to the greased baking sheet.
10. If desired, sprinkle pretzels with coarse salt; bake in preheated 475°F oven for 10-12 minutes. Pretzels should be crispy and brown. Remove from the baking sheet and cool on wire rack. Pretzels are best served at once but they will keep for about a week in an airtight container.

Option: A mixture of half whole wheat/half all-purpose flour may be substituted for the all-purpose flour.

STATE FAIR PRETZELS **8 large, soft pretzels**

This recipe is quick and easy to make. Try it out and compare it to the other pretzel recipe. Is it just as good or better?

Ingredients

1 loaf of frozen bread dough
Lukewarm water (105 - 115°F)
Sesame seeds or corn meal

Directions

1. Let dough thaw, covered, overnight in refrigerator or for several hours at room temperature until soft enough to shape.
2. On a floured surface, pat dough into a rectangle. Cut lengthwise into 8 strips. Cover and let rest for 10 minutes.

3. Roll each strip on floured surface until it is 1/2 inch thick and 18 inches long.
4. Arrange strips into pretzel shape and place on greased baking sheets.
5. Brush with lukewarm water. Sprinkle lightly with sesame seeds or cornmeal.
6. Let rise, uncovered, for 15 to 20 minutes in warm, draft-free place.
7. During rising time, place a shallow pan of water on bottom shelf of oven. Preheat oven to 425°F.
8. Bake pretzels on center shelf of oven for 18 to 20 minutes or until brown. Remove from baking sheet and cool on a rack.

CONSUMER'S CHOICE

Make both types of pretzels—using homemade and frozen bread dough—by yourself or with your group members. Compare the quality and price of making each kind. How much time was required? Which pretzel do you prefer? If you have eaten large, commercially made pretzels, include them in your evaluation. Write a critique of the pretzels below:

	<u>Price</u>	<u>Time to Make Quality</u>
Frozen Dough Pretzels:		
Homemade Pretzels:		
Commercially-made Pretzels:		

Write a paragraph describing your pretzel comparisons.

ANADAMA BREAD

2 loaves

This is a New England bread. Whole wheat flour has been added for texture and flavor. This recipe uses a variety of grain flours in the Rapidmix method.

Ingredients

3 cups whole-wheat flour	1/4 cup softened margarine
3 cups all-purpose flour	2 1/4 cups very warm tap water (120 - 130°F)
1 1/2 cups yellow corn meal	1/2 cup molasses
2 teaspoons salt	
2 packages active dry yeast	

Directions

1. Mix whole-wheat and all-purpose flour together.
2. In large bowl, thoroughly mix 2 cups mixed flour, cornmeal, salt and dry yeast. Add softened margarine and mix.
3. Mix together very warm tap water and molasses. Gradually add liquids to dry ingredients. Beat for 2 minutes at medium speed with an electric mixer. Scrape bowl occasionally.
4. Add 1/2 cup more of mixed flour and beat at high speed for 2 minutes. Stir in enough additional flour by hand to make a stiff dough.
5. Turn onto lightly floured surface; knead for 10 minutes. Place in a greased bowl; turn so that greased side is on top. Cover and let rise in warm place until almost doubled in bulk, about 1 hour.
6. Punch down; cut in half. Shape into loaves using the rolling method and place into greased 9x5 inch loaf pans.
7. Cover the loaves; let rise in warm place until doubled in bulk, about 1 hour.
8. Preheat oven to 375°F. Bake for 45 minutes, or until loaf sounds hollow when tapped. Remove from pans, cool on wire racks.

WHOLE WHEAT PIZZA

1 14-inch pizza

This is a different version of pizza crust. It can be made ahead and refrigerated until ready to bake.

Ingredients

1 package active dry yeast	1/4 teaspoon coarsely ground pepper
1 1/4 cups warm water (105 - 115°F)	1 teaspoon salt
1 teaspoon sugar	3 cups whole wheat flour (approximately)
2 tablespoons olive oil	

Directions

1. Dissolve yeast in water and sugar. Let stand 5 minutes.
2. Add olive oil, pepper, salt and 1/2 cup flour. Stir to thoroughly mix.
3. Continue adding flour until a stiff dough is formed.
4. Turn onto floured surface and knead well.
5. Place dough into greased bowl; turn so greased side is on top. Cover; let rise in a warm place until almost doubled in bulk, about 1 1/2 hours.
6. Punch down; let rest for 5 minutes. Roll out to a 14-inch diameter circle. Place circle on a lightly greased pizza pan or baking sheet. Pinch up the edge to form a rim.
7. Cover tightly and refrigerate for up to 2 days before using.
8. When ready to bake, take dough from refrigerator. Add your favorite tomato sauce and bake in a preheated 425°F oven for 15 minutes.
9. Remove from oven and top with mozzarella, cheddar or Monterey jack cheese. Garnishes such as onions, green peppers, zucchini, mushrooms or olives may be added. Return to oven for another 15 minutes, or until cheese melts.

COOLRISE YEAST ROLLS

2 dozen rolls

Ingredients

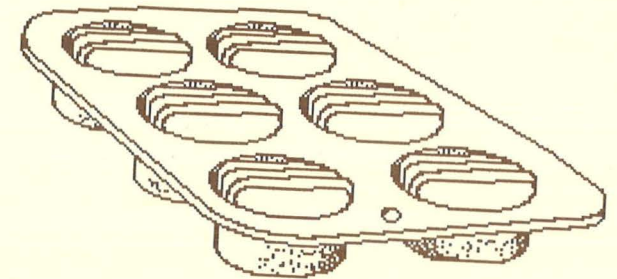
5 1/2 to 6 1/2 cups all-purpose flour	1/4 cup soft margarine
2 packages active dry yeast	2 1/4 cups very warm tap water (120 - 130°F)
1/4 cup sugar	Cooking oil
2 teaspoons salt	

Directions

1. Combine 2 cups flour, yeast, sugar and salt in large bowl. Blend thoroughly.
2. Stir in softened margarine.
3. Add very warm water and beat with electric mixer for 2 minutes at medium speed. Scrape bowl occasionally.
4. Add another cup of flour and beat on high speed for 1 more minute. Scrape sides of bowl.
5. Gradually stir in just enough remaining flour to make a soft dough.
6. Turn onto floured surface. Knead about 10 minutes, or until dough is smooth and elastic.
7. Cover with plastic wrap and towel to keep from drying out. Let rest for 20 minutes and then punch down.
8. Shape dough into rolls as desired. Place on greased baking pans. Brush them very lightly with oil.
9. Cover pans loosely with plastic wrap. Refrigerate from 2 - 24 hours.
10. For baking, remove from refrigerator and uncover. Let stand for 5 minutes. Preheat oven to 400°F.
11. Bake for 12 - 15 minutes, or until done. Remove from baking sheets and cool on wire racks.

IN YOUR OPINION: What are the advantages to using a Coolrise, refrigerator or freezer dough? Are there any disadvantages?

pieces. Place the cut side down in a greased muffin tin.

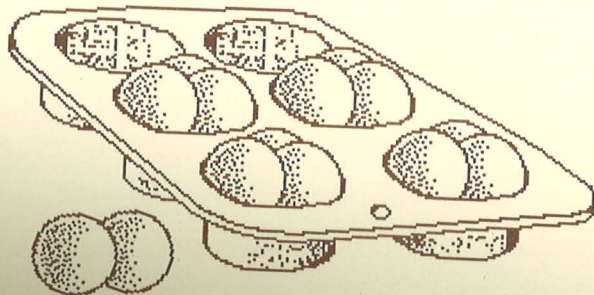


Lucky Clover Rolls. Divide dough into individual rolls. Place in greased muffin tins. Cut rolls into quarters with kitchen scissors.

SHAPING ROLLS

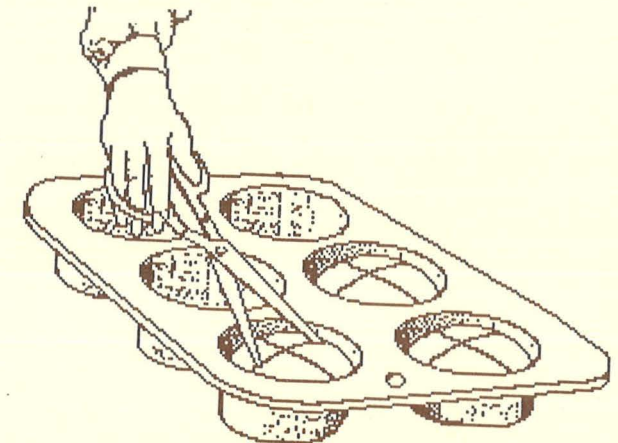
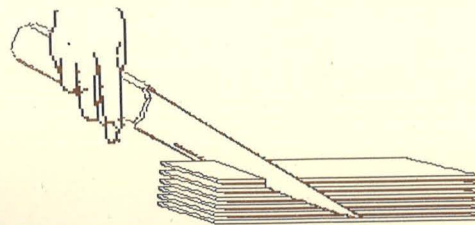
Bowknots. Roll dough into a 12x6 inch rectangle about 1/4 - 1/2 inch thick. Cut into 12 1-inch strips. Tie the strips into knots leaving the loop in the center open. Place on greased baking sheet.

Cloverleaf Rolls. Form 1-inch smooth balls. Place three balls in greased muffin tin.



Crescents. Roll dough into a 12-inch circle about 1/4 inch thick. Brush lightly with melted margarine. Cut into 12 wedges. Roll up tightly starting at the wide end. Seal points and place underneath roll on a greased baking sheet. Curve slightly to form crescent.

Fan Tans. Roll dough into a 12x9 inch rectangle about 1/4 inch thick. Brush lightly with melted margarine. Cut into 6 2-inch wide strips. Stack the strips. Cut into 12



Parkerhouse Rolls. Roll dough to 1/2-inch thick on a lightly floured surface. Cut with a biscuit cutter. Indent with a table knife across center of the circle. Lightly brush one half of circle with margarine. Fold in half so edges meet. Press together.

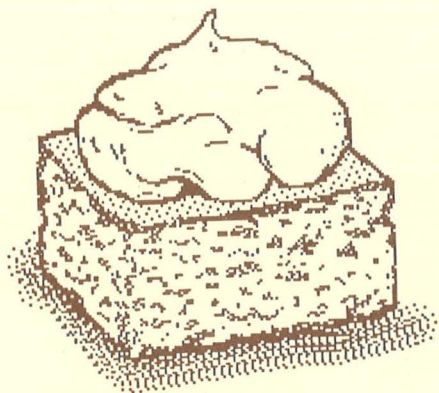
PART 6. Finale

Once in a while, bakers look past yeast bread and rolls for their baking delights. Occasional **cakes and pies** are other ways to add spice to your menus.

CAKES

Cakes can be made WITH FAT and WITHOUT FAT. Recipes for butter cakes are made with fat. They are very similar to recipes for cookies except there is more liquid. The method of mixing butter cakes is also similar to the mixing method for cookies: typically, fat is creamed with sugar and eggs; then dry and liquid ingredients are added. Cakes should be fine in texture, light, tender and moist.

Sponge cakes and angel food cakes are made without fat. These cakes use more eggs than butter cakes. Only the egg whites are used in angel food cakes so these cakes also are low in cholesterol. The texture of the cakes made without fat is very light and fine.



HELPFUL HINTS ABOUT CAKES

- Cakes can be made with all-purpose flour or cake flour. Cakes made with cake flour will be lighter and have a finer texture than cakes made with all-purpose flour. If a recipe asks for cake flour and you only have all-purpose flour, use 2 tablespoons less all-purpose flour for each cup of cake flour called for in the recipe.
- For baking, use the recommended pan size. If pans are too large, the cake will be flat and small. If pans are too large, the batter will spill over the sides of the pan as it bakes.
- Fill baking pans only half full with batter. Leftover batter can be used for cupcakes.
- To prepare baking pans for butter cakes, grease lightly and line with wax paper
or
Lightly grease and flour the baking pan.
- Baking pans for angel and sponge cakes are generally grease-free tube pans. Grease will interfere with the leavening action.
- Butter cakes are done when a toothpick inserted in the center comes out clean
or
Cake is done when it springs back when lightly touched in the center.
- When angel and sponge cakes are done they should feel dry to the touch. They should be cooled by hanging upside down in their tube pan for about 1 1/2 hours.
- To get butter cakes out of the pan safely and in one piece, cool cake in pan for 10 minutes after removing from oven. Then remove from pan and finish cooling on wire rack before frosting.

PIES AND PASTRY

Pies and pastry crusts are other ways to add variety. Keep in mind, however, that pastries are rich in fat. They should be eaten sparingly.

Pastry dough typically uses flour, fat and water as basic ingredients. In the past, all-purpose flour, and lard or vegetable shortening were commonly used. Today, if you choose to make a pie crust you have several options. You might try making a whole wheat crust, an oil pastry, or a variety of crumb crusts.

First, here are some pointers for making a traditional pie crust.

- Handle dough lightly. Too much handling will develop the gluten in the flour and make your crust tough. Cut in fat with a fork, pastry blender, or two knives only until mixture resembles coarse cornmeal.
- Too much liquid, flour or fat affects the texture of your crust: extra liquid and flour may make a tough crust; extra fat will make a greasy, crumbly crust.
- Chilling the dough after mixing may make it easier to handle.
- Roll the dough from the center out. Lift your roller as you approach the edges. The best thickness is 1/8 inch or less.

- To place the rolled out pastry in the pie pan, fold it into quarters. Place the point in the center of the pan and fold out.

or

Roll your pastry around your rolling pin and unroll into pie pan.

- Non-shiny pie pans will help brown the crust.
- Unfilled pie shells should be pricked with a fork before baking.

If you are adventuresome, you might try an oil pastry or a whole wheat pastry. Switching from lard or shortening to oil

will not necessarily lower the fat content. However, it will change the type of fat from saturated to unsaturated. Saturated fat can raise blood cholesterol levels and increase heart disease risk. Using whole wheat flour will change the texture, color and flavor of the pastry. Whole wheat crust also will add fiber to your diet.

Sometimes people use a commercial pie crust. It's all a matter of choice, time and money. To help you decide what you like better, try the following exercise.

LET'S EXPERIMENT -

Consumer's Choice on Pie Crusts

Materials Needed: 1 pie shell from each of the following: conventional pie crust, oil pastry, whole wheat pastry, commercially made pastry stick or preformed pie shell; appropriate mixing and baking utensils.

Directions:

1. Bake the pie shells according to the instructions provided in each recipe; bake for required time; let pie shells cool when finished.
2. Set up a tasting table for judging your products. Use the following table to record your comments.

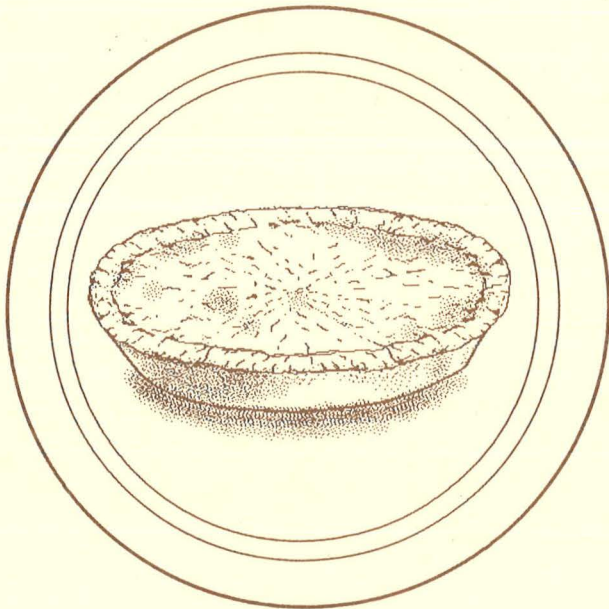
	Appearance	Flavor	Texture	Overall Rating
Conventional crust				
Oil crust				
Whole wheat crust				
Pastry stick crust or Preformed pie shell				

Which crust do you prefer? What are the qualities you like best?

Were there any differences in the amount of time to prepare the crusts?

Ideas for Pies

Pies don't always need to be a dessert. Pies can be part of your main course. Look for recipes for quiche, meat pies and vegetable pies. You might also find recipes for crustless main dish pies!



STANDARD PLAIN PASTRY
1 8 or 9-inch single or double crust

Ingredients

Single Crust

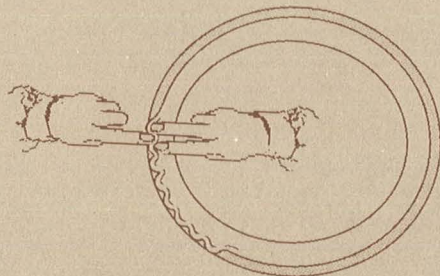
1 cup all-purpose flour
3/4 teaspoon salt
1/3 cup vegetable shortening
2 1/2 tablespoons cold water

Double Crust

1 1/2 cups all-purpose flour
1 teaspoon salt
1/2 cup vegetable shortening
4 tablespoons cold water

Directions

1. Mix flour and salt in a bowl.
2. Blend in shortening with pastry blender or fork until mixture looks like coarse cornmeal.
3. Sprinkle water over the surface and toss lightly and quickly with a fork. Mixture will begin to stick together.
4. Form pastry into smooth ball.
5. Roll out pastry with smooth, even strokes until diameter is about 2 inches larger than the top rim of the pan. Place in pie pan.



To finish an edge: with one forefinger on inside rim and other forefinger and thumb on outside, push and pinch evenly around pie. Use about 1 inch spacing.

Single crust:

- a. Finish edges.
- b. Prick the bottom and sides with a fork for an empty pie shell. For custard pies, do not prick.
- c. Bake empty pie shell in preheated 450°F oven for 12-15 minutes. If filling pie shell, bake according to the directions for the filling.

Double crust:

- a. Fill pie shell with desired filling.
- b. Place second crust on top; fold and roll pastry edge under the lower edge; pinch the finish edges.
- c. Bake according to the instructions for the filling.

OIL PASTRY

1 8 or 9-inch single or double crust

Ingredients

Single crust

1 cup plus 2 tablespoons all-purpose flour
1/2 teaspoon salt
1/3 cup vegetable oil
2 to 3 tablespoons cold water

Double crust

1 3/4 cups all-purpose flour
1 teaspoon salt
1/2 cup vegetable oil
3 to 4 tablespoons cold water

Directions

1. Mix flour and salt in mixing bowl.
2. Add oil; mix with fork or pastry blender until fine crumbs are formed.
3. Sprinkle in water one tablespoon at a time. Mix with fork until dough almost cleans sides of bowl. Gather dough into a ball for single crust or two balls for double crust.
4. Roll out by placing flattened balls of dough between two sheets of waxed paper. Roll with smooth even strokes until pastry is desired size, about two inches larger than the top rim of the pie pan.
5. Peel off one sheet of waxed paper. Place crust into pie pan, crust side down and paper on top. After placed correctly, peel off top paper. Repeat steps 4-5 for second crust.

6.

Single crust:

- a. Finish edges.
- b. Prick the bottom and sides with a fork for an empty pie shell. For custard pies, do not prick.
- c. Bake empty pie shell in preheated 450°F oven for 12-15 minutes. If filling pie shell, bake according to the directions for the filling.

Double crust:

- a. Fill pie shell with desired filling.
- b. Place second crust on top; fold and roll pastry edge under the lower edge; pinch the finish edges.
- c. Bake according to the instructions for the filling.

WHOLE WHEAT PASTRY DOUGH

1 10-inch single crust

This recipe is a little trickier to make. See how you like it.

Ingredients

- 1 1/2 cups whole wheat flour
- 1/2 cup wheat germ
- 3/4 teaspoon salt
- 1/2 cup plus 2 tablespoons stick margarine
- 4 to 6 tablespoons cold water

Directions

1. In mixing bowl, stir together whole wheat flour, wheat germ and salt.
2. Cut margarine in with pastry blender or two knives until dough looks like rolled oats.
3. Sprinkle water into dough; mix quickly and lightly until it just begins to hold together. Form into a ball.
4. Refrigerate for at least 30 minutes before rolling out.
5. Roll dough between two sheets of waxed paper. Use even, smooth strokes. Roll to a size that is about 2 inches larger than the top rim of the pie pan.
6. Remove top waxed paper; place pastry into pie pan with crust down and remaining waxed paper on top. When placed correctly, remove the other sheet of waxed paper.
7. Finish the edges as with standard plain pastry. If making an empty pie shell, be sure to prick the sides and bottom of the crust.
8. For partially baked pie shell, bake in preheated 400°F oven for 7 minutes. For fully baked pie shell, bake in preheated 400°F oven for 10-12 minutes.

OIL PASTRY IN THE PAN
1 8 or 9-inch single crust

This recipe makes an easy baked pie shell.

Ingredients

- | | |
|-----------------------------|-----------------------|
| 1 1/2 cup all purpose flour | 1/2 cup vegetable oil |
| 1 1/2 teaspoon sugar | 2 tablespoons milk |
| 1 teaspoon salt | |

Directions

1. Mix dry ingredients thoroughly in pie pan.
2. Mix oil and milk together.
3. Add liquid ingredients to dry in the pie pan. Stir just until mixed. Press the dough along bottom and sides of pie pan until even. Prick bottom with a fork. Finish edges.
4. Bake in preheated oven at 350°F for 10-12 minutes.

PIE FILLINGS

FRESH STRAWBERRY PIE FILLING

8 servings

Ingredients

- | | |
|--------------------------------|----------------------------------|
| 3/4 cup granulated sugar | 1 cup water |
| 2 tablespoons corn starch | 2 tablespoons strawberry gelatin |
| 3 tablespoons white corn syrup | (dry) |
| | 4 cups whole strawberries |

Directions

1. Wash and remove stems from strawberries. Allow to drain.
2. Mix sugar, corn starch, syrup and water in saucepan.
3. Bring sugar mixture to a boil. Stir constantly until thick and clear.
4. Remove from heat. Add gelatin; stir until dissolved. Cool.
5. Arrange strawberries in bottom of baked pie shell.
6. Pour cooled mixture over strawberries. Chill in refrigerator until set.

APPLE PIE FILLING

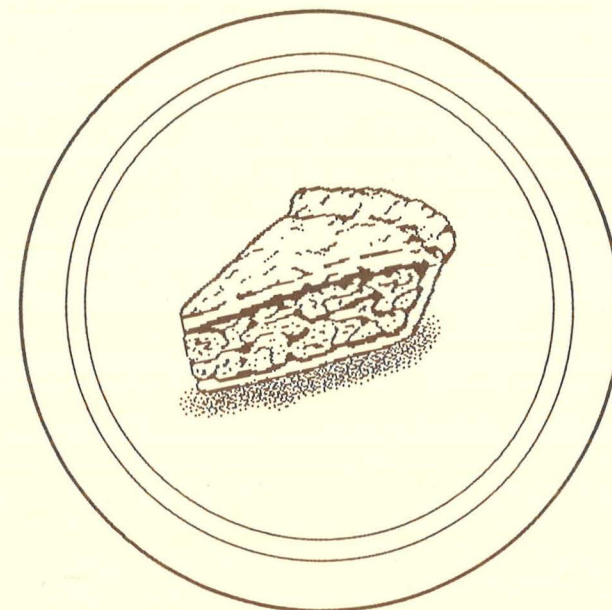
8 servings

Ingredients

4 cups sliced & peeled apples	1/8 teaspoon nutmeg
3/4 cup granulated sugar	2 teaspoons lemon juice
1/2 teaspoon cinnamon	1 tablespoon margarine

Directions

1. Mix apples, sugar, cinnamon, nutmeg and lemon juice in a bowl.
2. Place in unbaked 9 inch-pie shell. Place dots of margarine on top of apples.
3. Cover with top pie shell. Finish edges. Prick with fork.
4. Place on middle rack in 400°F oven. Bake 10 minutes. Then reduce heat to 350°F. Bake for another 30 to 35 minutes. Remove from oven.



PUMPKIN PIE FILLING

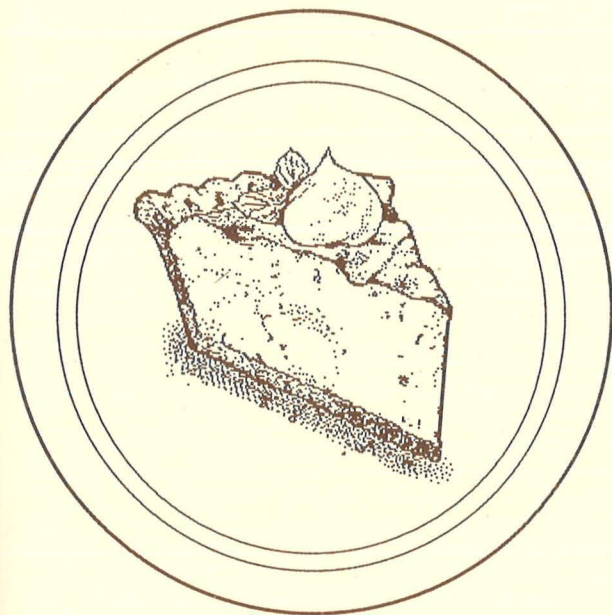
8 servings

Ingredients

1 1/2 cups canned pumpkin	1/2 teaspoon nutmeg
2/3 cup granulated sugar	1/8 teaspoon cloves
1/2 teaspoon cinnamon	1 1/2 cups evaporated skim milk
1/2 teaspoon ginger	2 eggs, slightly beaten

Directions

1. Combine pumpkin, sugar, spices in mixing bowl.
2. Add evaporated milk and eggs. Mix well with rotary beater or electric mixer until smooth.
3. Pour into unbaked 9-inch pie shell.
4. Bake in 450°F oven for 10 minutes. Reduce heat to 325°F and bake for another 40-45 minutes. When done, a knife inserted in the middle of the filling should come out clean. Remove from oven.



CRUMB CRUSTS

Variations on a theme

These crusts are short cuts. They might be used with a variety of fruit or pudding fillings.

Graham Cracker Crust

1 1/2 cups finely crushed graham cracker crumbs
2 tablespoons sugar
1/3 cup melted margarine

1. Combine all ingredients and mix well.
2. Press firmly in 9-inch pie pan.
3. Chill 45 minutes before filling.

Cornflake Crust

1 cup finely crushed cornflake cereal
2 tablespoons sugar
1/4 cup melted margarine

1. Combine all ingredients.
2. Press firmly in 9-inch pie pan.
3. Chill 45 minutes before filling.

Gingersnap Crust

1 1/2 cups finely crushed gingersnaps
1/4 cup softened margarine

1. Combine ingredients.
2. Press firmly into a 9-inch pie pan.
3. Bake in preheated 375°F oven for 6-8 minutes. Cool on wire rack.

Vanilla Wafer Crust

1 1/2 cups finely crushed vanilla wafers
1/4 cup melted margarine

1. Combine ingredients.
2. Press firmly into a 9-inch pie pan.
3. Chill 45 minutes before filling.

CHICKEN POT PIE FILLING

4-6 servings

Ingredients

1/2 cup nonfat dry milk	1/8 teaspoon black pepper
3 tablespoons flour	2 cups cooked chicken, diced
1 1/2 cups water	1/4 cup chopped onions
1/2 teaspoon parsley	1 1/2 cups mixed frozen vegetables, thawed

Directions

1. Mix dry milk, flour and water in saucepan until smooth.
2. Add parsley and pepper. Cook over medium heat. Stir constantly until thickened.
3. Add chicken, onions and mixed vegetables to thickened sauce. Pour into 1 1/2 quart casserole.
4. Cover with pie crust. Press edges to casserole dish. Prick with fork.
5. Bake at 400°F for 20-25 minutes. Remove from oven.

GINGER CAKE

8 servings

This recipe is adapted from a USDA publication, Ideas for Better Eating. Even cakes can be adjusted to be lower in fat and sugar and still be delightful.

Ingredients

1/3 cup oil	1 teaspoon baking powder
1/3 cup light molasses	1 teaspoon ginger
1/4 cup sugar	1/2 teaspoon cinnamon
1 egg	1/4 teaspoon nutmeg
1 cup whole wheat flour	1/3 cup skim milk
1/4 teaspoon salt	
1/4 teaspoon baking soda	

Directions

1. Preheat oven to 350°F.
2. Lightly grease and flour an 8x8 inch baking pan.
3. Mix oil, molasses, sugar and egg thoroughly together.
4. Mix flour, salt, baking soda, baking powder and spices together.
5. Add flour mixture and milk alternately to molasses/oil mixture.
6. Pour into prepared baking pan.
7. Bake for 30 minutes or until surface springs back when touched lightly.
8. Remove from oven and cool on wire racks. Serve with a sprinkle of powdered sugar on top.

FAVORITE QUICHE

6 servings

This cheese pie can be made with your favorite vegetables for a main dish. Making it with whole wheat pastry adds extra flavor and texture.

Ingredients

Whole wheat crust:

- 1 1/2 cups whole wheat flour
- 1/2 cup wheat germ
- 3/4 teaspoon salt
- 1/2 cup plus 2 tablespoons
stick margarine
- 4 to 6 tablespoons cold
water

Filling:

- 2 cups milk
- 3 eggs, slightly beaten
- 1/2 teaspoon salt
- 1/8 teaspoon pepper
- 3/4 cup grated Swiss cheese
- 1 cup favorite vegetable, cooked
but slightly crisp
- 1/8 teaspoon nutmeg

Directions

1. Make whole wheat pie dough. Refrigerate for 30 minutes before rolling out. Roll between two sheets of waxed paper. Remove one sheet of waxed paper and place crust down in pie pan. Remove other waxed paper and finish edges. Partially bake in preheated 400°F oven for 7 minutes.
2. To bake filling, preheat oven to 350°F.
3. Warm milk to 100°F. Combine milk, eggs, salt and pepper.
4. Spread grated cheese and favorite cooked vegetable in bottom of partially baked pie shell (suggested vegetables are sauteed mushrooms, onions, asparagus, spinach, broccoli, or mixed vegetables); pour milk mixture over all.
5. Sprinkle the top with nutmeg.
6. Place pie pan on cookie sheet to prevent oven spills; bake for 30 minutes, or until set. Check for doneness by inserting a knife close to the center of the pie. If it comes out clean, pie is done.
7. Remove from oven and let stand 10 minutes before serving.

Variation: SELF-CRUST QUICHE

1. Omit whole wheat crust.
2. Preheat oven to 325°F.
3. Grease a 9 inch-pie pan with margarine. Sprinkle bottom and sides of greased pan lightly and evenly with paprika.
4. At step 3 in original recipe, add 1/2 cup whole wheat flour to the milk, eggs, salt and pepper.
5. Complete steps 4-7 of original recipe.

Serve in wedge shaped pieces. The added whole wheat flour makes a soft crust without the work of a separate crust.

QUICK ONE-EGG CAKE
2 8-inch round cakes

Ingredients

1 3/4 cup all-purpose flour	2/3 cup skim milk
1 cup sugar	1 teaspoon vanilla
2 teaspoons baking powder	1 egg
1/2 teaspoon salt	1/3 cup skim milk
1/3 cup softened margarine	

Directions

1. Preheat oven to 375°F.
2. Grease and flour two 8-inch round pans.
3. Sift flour, sugar, baking powder and salt into electric mixing bowl.
4. Add softened margarine and 2/3 cup skim milk to dry ingredients. Mix for 2 minutes at medium speed.
5. Add vanilla, egg, and 1/3 cup skim milk. Mix for 2 more minutes at medium speed. Scrape bowl constantly.
6. Pour batter into prepared cake pans. Bake for 25 minutes or until cake springs back when lightly touched in the middle.
7. Remove cake from oven and allow to cool on a rack for 5 to 10 minutes. Remove from pan if desired. Cake may be frosted with a powdered sugar frosting.

IT'S TIME TO WRAP IT UP AGAIN

To celebrate your completion of this project, try organizing a bake sale service project for your 4-H group. Members can contribute favorite baked items to sell. The proceeds of your sale can help a special project in your community. Check with your leaders for ideas.

Recipe File

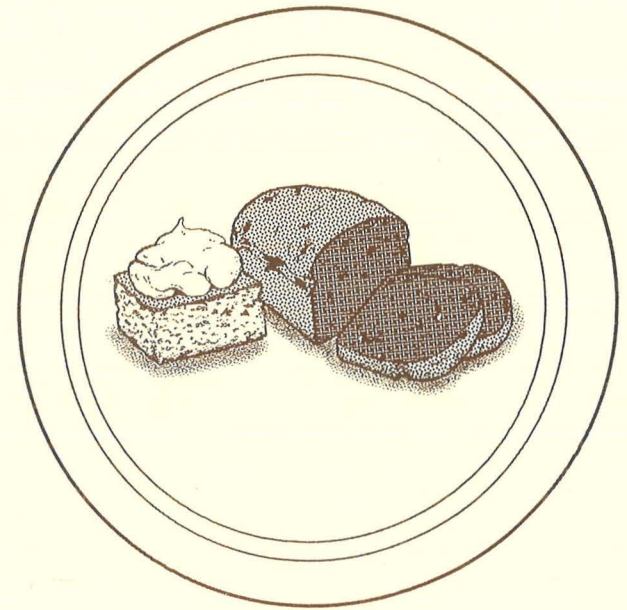
Keep updating your recipe file. If you haven't started one yet, make plans to do so. Don't let those favorite recipes get away.

For the Record

Be sure to complete your record sheet of baking activities in this project. Before you go on to other projects, check off the baking skills you have learned thus far.

MORE BAKING FUN
(Level 2)
Yeast Breads, Cake, Pastry

Be able to check off 30 of 36 skills listed before you move to the next project.



	Skills I Knew	New Skills I Learned	Skills to Learn or Improve
<p>Preparation</p> <p>Dissolve yeast</p> <p>Know why yeast grows</p> <p>Describe different types of yeast</p> <p>Describe the factors that affect yeast growth</p> <p>Know what each ingredient does</p> <p>Knead yeast dough</p> <p>Shape yeast rolls</p> <p>Shape yeast bread</p> <p>Know the purpose for each step in making yeast bread</p> <p>Know the steps for making pastry dough</p> <p>Know the steps for cake preparation</p> <p>Know when bread is done</p> <p>Prepare a batter yeast bread</p> <p>Prepare bread using the sponge method</p> <p>Prepare a refrigerator yeast bread</p> <p>Make a Rapidmix yeast bread</p> <p>Make a Coolrise yeast product</p> <p>Know about other types of flour</p> <p>Make bread, cake or pastry using flour other than white flour</p> <p>Combine several kinds of flour into one baked product</p>			

	Skills I Knew	New Skills Learned	Skills to Learn or Improve
<p>Nutrition</p> <p>Know the nutritional value of grain products</p> <p>Describe how grain products fit into the Dietary Guidelines for Americans</p> <p>Evaluate the nutritional differences of baked products made with different types of flour</p> <p>Food Safety and Sanitation</p> <p>Store baked products so they have good quality</p> <p>Wear clean clothes when preparing food</p> <p>Wash dishes and equipment when finished</p> <p>Keep hands, nails and equipment clean during preparation</p> <p>Use pot holders or hot pads</p> <p>Know how to use an electric mixer</p> <p>Consumer Choices</p> <p>Evaluate yeast bread quality</p> <p>Observe the quality of baked products made with different flours</p> <p>Compare the quality of homemade breads to commercial breads</p> <p>Compare the cost of homemade breads to commercial breads</p> <p>Evaluate the quality of various pie or pastry crusts</p>			

	Skills I Knew	New Skills Learned	Skills to Learn or Improve
Meal Planning Know how bread products fit into meal and snack plans Use a variety of bakery products in meals and snacks			