



Yeast Breads



Patricia F. Thonney



Cornell Cooperative Extension

Acknowledgments

Yeast Breads is one in a series of publications to help children ages 9 to 12 acquire food skills and appreciate the science of cooking. The goals of the Cooking Up Fun! initiative are to

- increase life skills related to food preparation.
- model practices that reflect the Dietary Guidelines and the Food Guide Pyramid.
- promote locally produced foods.
- expand opportunities for experiential learning.
- develop understanding of the science of cooking.
- have fun!

Special appreciation is extended to all Cornell Cooperative Extension educators who are involved in the Cooking Up Fun! initiative and who guided the development of *Yeast Breads*. Funding for statewide training is provided by the New York State 4-H Foundation.

This recipe collection is part of unpublished work completed in 1990. At that time Mrs. Clive McCay encouraged the Division of Nutritional Sciences to write a book about bread. Mrs. McCay devoted many years to promoting the Cornell Formula bread developed by her husband, Dr. Clive M. McCay, in the 1940s. It is fitting that *Cooking Up Fun! Yeast Breads* may inspire a new generation of bread bakers. The recipes were created by Lisa Hilbert (B.S. '89), taste-tested and evaluated by Division of Nutritional Sciences faculty and staff, and field-tested by Cornell Cooperative Extension educators and volunteer leaders.

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This publication is issued to further Cooperative Extension work mandated by acts of Congress of May 8 and June 30, 1914. It was produced with the cooperation of the U.S. Department of Agriculture; Cornell Cooperative Extension; and College of Agriculture and Life Sciences, College of Human Ecology, and College of Veterinary Medicine at Cornell University. Cornell Cooperative Extension provides equal program and employment opportunities. D. Merrill Ewert, Director.

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Produced by Media and Technology Services at Cornell University

www.mediasrv.cornell.edu

Printed on recycled paper

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399LM21 420/700 10/00 3M SL MTS00141

ISBN 1-57753-298-8

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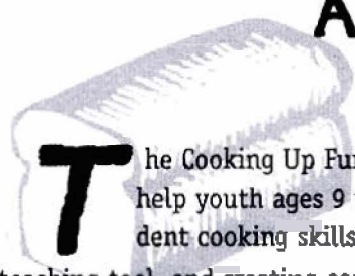
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About This Teaching Guide



The Cooking Up Fun! series is designed to help youth ages 9 to 12 develop independent cooking skills. Recipes are the primary teaching tool, and creating conversations from the recipes is important.

Yeast Breads allows flexibility in planning and delivering programs in a variety of settings. It is especially appropriate for informal education settings—4-H clubs, EFNEP, summer camps, scouts, and other community programs—that provide the time and freedom for personal exploration and repetition of activities.

Information to help adults plan and deliver a cooking program featuring yeast breads is organized into five sections:

About This Teaching Guide states the philosophy and goals for teaching independent cooking skills, including their role in nutrition education.

- **Creating a Cooking Program** provides guidance for planning, teaching, and evaluating a series of cooking sessions.

A Sample Cooking Series includes one possible teaching plan for six sequential bread baking sessions. It includes food activities to explore cultural history, ways of making dough, science, grains, nutrition, and creative fun.

- **Recipes** includes 20 recipes for making yeast breads.

More Information provides a quick reference for selected nutrition, food, and cooking topics.

Experiential Learning

Cooking, reading recipes, reading food labels, and doing experiments are all ways of discovering the science of food and food ingredients, including nutritional benefits. The more opportunities youth have to discover the information you think they should know, the more effective your teaching will be. And the more fun they will have!

Experiential learning puts the adult in the role of facilitator rather than lecturer or “expert” teacher. Several strategies will help you develop teaching plans that ensure experiential learning.

- **Planning.** Involve the youth in planning the cooking program by selecting recipes together. Find out what they are interested in learning. Everyone enjoys having choices!
- **Listening.** Take the time to let youth share what they know about a recipe before you start cooking. This recognizes personal experiences they bring to the session, provides an opportunity for youth to interact with each other, and will help you guide the learning process.
- **Creating conversations.** Ask questions to help youth discover information rather than just giving them lots of facts. Open-ended questions promote more conversation than closed-ended questions such as those with yes or no answers. Conversations promote thinking skills that result in more meaningful learning.
- **Being flexible.** Allow the youth to change your teaching plan. It’s a good idea to have an organized outline of what you plan to do. But it’s also a good idea to change it while you’re teaching to meet unexpected needs or interests of the youth.
- **Having fun!** As important as anything you say is your enthusiasm for learning. Relax and have fun!

Science in the Kitchen

Cooking is science. From physical changes to chemical reactions, much happens when you prepare yeast breads.

You use the science of chemistry to mix ingredients and to bake dough. You explore biology when handling yeast and grains. And you learn the science of nutrition when talking about how your body uses food.

Youth gain much from the process of cooking and doing science. They learn to choose appropriate tools and handle them safely, follow a procedure, ask questions, and wonder what would happen “if I used whole wheat flour instead of all-purpose flour, if I added raisins, if I shaped the dough differently.” They gain confidence from success and from sharing the results with others.

Life Skills from the Kitchen

While learning about nutrition is an important reason to teach cooking skills to youth, there is much more. Six themes woven into *Yeast Breads* are cultural history, ways of making dough, science, grains, nutrition, and creative fun.

Each cooking and food activity in *Yeast Breads* promotes one or more life skills, including the ability to acquire knowledge, make decisions, communicate, and recognize self-worth. Part of self-worth is the individuality that comes from creative and cultural expression in cooking. It also includes the “I can do it!” feelings of accomplishment that are so important to healthy growth and development. Life skills acquired from successful cooking experiences will transfer to other activities, helping youth become productive members of society.

Nutrition and Cooking

Baking is fun! Although making yeast bread by hand is becoming a lost art, it provides many opportunities to learn about ingredients and food. The sensory aspects of handling dough and the physical and chemical changes that occur make bread baking a very engaging learning experience for youth.

Breads are grain foods, the base of the Food Guide Pyramid. In general, yeast breads have limited amounts of fat, sugar, and sodium. Some higher-fat breads such as doughnuts or sticky buns are better choices for special occasions than everyday eating. It's still OK to enjoy making them.

Learning independent cooking skills is a foundation for healthy choices and good nutrition. As youth gain experience handling foods, they can prepare more foods for their family, friends, and personal enjoyment. While making yeast bread from scratch will not become an everyday practice for most people, it is a wonderful way for youth to learn more about food, culture, science, and technology.

Creating a Cooking Program

Recipes

Recipes in *Yeast Breads* were selected to model bread baking skills and ingredient choices. As youth begin using and creating their own recipes, they will be able to look for ways to add whole grains and to limit fat, sugar, and salt. This recipe collection should be expanded to include personal and cultural preferences.

Nutrition is only one of many criteria to consider when selecting recipes for beginning cooks. The recipes in *Yeast Breads*

- use low-cost ingredients.
- use readily available ingredients.
- require only basic tools and equipment.
- have easy-to-follow instructions.
- provide opportunities to practice cooking techniques.
- require limited adult assistance.
- are easy to prepare and clean up.
- teach concepts of the Dietary Guidelines.
- promote locally produced foods.
- increase exposure to a variety of foods.
- reflect a variety of cultural contexts.
- are fun to make!
- taste great!

Try collecting all the recipes for yeast breads from cookbooks and magazines, and you'll soon have hundreds. Yet all are variations on a few basic ingredients and methods of mixing dough. With a few skills, you can change ingredients to create dozens of variations—new flavors, new textures, less fat, more fiber, or other qualities you want. Use the recipes in *Yeast Breads* to promote an understanding of ingredient functions while encouraging individual creativity. It makes baking both successful and fun!

Pan Breads	Shaped Breads
Apple Raisin Bread	Anadama Rolls
Bread-in-a-Bag	Crisp Flavored Breadsticks
Cornell Bread	Hot Cross Buns
Cornell Bread Variety	Italian Bread
Dilly Bread	Pizza Snack Sticks
Jalapeño Cheese Bread	Pumpernickel Bread
Mixed Grain Bread	Soft Pretzels
Oatmeal Bread	Swedish Limpa Bread
Rye Batter Bread	Whole Grain Rolls
Whole Wheat Bread	Whole Wheat Pitas

Cooking Stations

One of the many decisions in creating a cooking program is deciding how everyone is going to work in the available space with the available supplies. Begin by knowing the environment and the needs of the youth. Individual work areas are ideal for experiential learning but may not be possible with space, cost, adult supervision, or other constraints.

Three ways to organize cooking stations are described. Which works best for your teaching situation? What other possibilities could be considered?

Cooking Independently

Individual work stations ensure that each child gets to manipulate ingredients and equipment and practice all steps of the cooking process. Many children will benefit from the opportunity to work independently. This works best if you have

- a small group (one to four).
- adequate space to spread out.
- multiple sets of cooking tools.
- enough ingredients.
- children capable of working independently.
- the ability to supervise multiple stations.

If you choose an option other than individual cooking stations, encourage children to try the cooking activity again at home with adult supervision or provide another time in your program for them to practice the skills.

Cooking with a Partner

This strategy is similar to individual work stations and can be a good way for children to master skills. Many children enjoy working with a partner and are able to share tasks without difficulty. This system works best if you have

- a small to medium group (four to eight).
- an even number of children.
- children who enjoy working together.
- adequate space to spread out.
- multiple sets of cooking tools.
- enough ingredients.
- the ability to supervise several stations and ensure that one "buddy" isn't dominating.

Cooking in a Group

This approach promotes cooperative learning skills, but it is the least desirable for teaching cooking skills. It is more like a "demonstration" in which tasks are divided among several children. Each child usually spends more time watching and waiting for a turn than actually doing. You might choose this approach if you have

- a medium to large group (six to twelve).
- limited space.
- limited time.
- limited equipment and ingredients.
- inability to supervise multiple work stations.
- exhausted the possibilities for breaking into smaller groups.

Supplies

A major part of planning a cooking program is organizing supplies. If you need to transport equipment to various locations, create a supply kit to keep basic equipment together in a large storage bin. The number of youth and type of cooking stations will determine how much duplicate equipment is needed.

Many baking ingredients can also be organized into a supply kit. Store ingredients in containers with tight-fitting lids or in resealable storage bags. When selecting ingredients try to include a few variations in type, brand, or form to promote conversations about choice.

Checklist of Baking Ingredients

Flour/Grain

all-purpose flour
whole wheat flour
rye flour
full-fat soy flour
oats
cornmeal
wheat germ
bran cereal

Leavening

active dry yeast
rapid-rise yeast

Sweetener

white sugar
brown sugar
molasses
honey

Fat

vegetable oil
margarine
butter
eggs

Liquid

milk
juice
water
vinegar

Seasoning

salt
herbs, spices

Other Ingredients

fruits, vegetables
seeds, nuts
cheese, cottage cheese
nonfat dry milk
unsweetened chocolate

Checklist of Baking Equipment

Measuring

liquid measuring cup
dry measuring cups
measuring spoons
table knife

Mixing

mixing bowls
resealable 1-gallon bag
wooden spoons
rubber spatula
clean towels
rolling pin
electric mixer
clean surface for kneading

Cutting

cutting board
paring knife
chef's knife
grater
peeler
3-inch cutter

Baking

loaf pan (8 x 4, 9 x 5)
round pan (9 x 9)
rectangular pan (9 x 13)
2-quart baking dish
baking sheet
aluminum foil
cooling rack
pot holders
oven

Cooking

small saucepan
cast iron skillet or
griddle

Cleaning

dishcloth
dish towel
dish detergent

Cooking Conversations

Recipes are the primary teaching tool in a cooking program, and creating conversation from them is important. Food skills, including relevant nutrition information, should emerge from a cycle of activity: sharing experiences, making the recipe, evaluating the experience, and planning the next session.

Sharing Experiences

Begin by engaging youth in conversation. Don't worry about "right" answers to questions. Instead, focus on talking together and sharing ideas. This interaction recognizes the personal experiences youth bring to the session, provides an opportunity for youth to interact with each other, and will help you guide the learning process. Opening each cooking session with a brief conversation can also tell you if the youth are using information learned from previous sessions.

It's a good idea to have a few questions to start the conversation, but be prepared to let the youth direct it as well. You can capture their questions or comments for future reflection in a group notebook or large sheet of newsprint taped to the wall.

Conversation starters for Soft Pretzels include

- Tell me what you know about pretzels.
How do you think they got their distinctive shape and name?
- What types of pretzels are there?
- What ingredients do you think are in pretzels?

Questions that compare two recipes can be asked again at the end of cooking sessions. These questions will promote comparison thinking and discussion about ingredients, cooking techniques, and product characteristics.

You could also begin a session with discussion about the recipe used in the previous session and ask whether youth tried making it at home. Did they have any problems? How did family or friends like it? What changes or variations did they try?

Making the Recipe

Demonstrating techniques before you start may be useful but is not essential. If you think it is, have one

of the youth help you instead of doing it all yourself. It's often easier for youth to get help as they move through the recipe steps, rather than hearing too much before they start working.

Be prepared to guide the cooking process but don't be too directive. When youth are learning to cook it's OK to make mistakes or not follow the directions precisely. At the end of the session, you may decide that repeating it together would strengthen their cooking skills.

As they work or while the bread is baking, involve the youth in conversation about what different instructions mean, what steps can be done in different ways, and why a certain technique will affect the product's acceptability. Encourage youth to ask questions about both ingredients and manipulation of the ingredients.

Evaluating the Results

Conclude the cooking experience by evaluating the bread. An evaluation can be simply jotted down on scrap paper and might look like this:

Appearance	<i>Excellent</i>	<i>Good</i>	<i>Need to Improve</i>
Flavor	<i>Excellent</i>	<i>Good</i>	<i>Need to Improve</i>
Texture	<i>Excellent</i>	<i>Good</i>	<i>Need to Improve</i>

Or it could be a more detailed score sheet like those used for judging 4-H fair exhibits (page 12). Talk about personal preferences and how you might change the recipe to make it more acceptable. Keep the evaluation a positive learning experience. A product failure is a natural first step toward success.

Evaluating the cooking experience includes more than just deciding the quality of the bread. Talk about the process as well. Were any mixing or baking techniques confusing? What might you do differently? How easy was it to work together? Did everyone help clean up? What suggestions do you have for the next session?

Encourage youth to make the recipe at home and to practice until they can prepare it on their own. It often takes several repetitions for youth to be able to use recipes independently.

Planning the Next Session

At the end of each session, review plans for the next session. If youth are helping provide supplies for the cooking program, it's a good idea to send home a written reminder for the next session.

The "What's Your Choice?—Yeast Bread Recipe Selection" sheet (page 10) is a way to involve youth in selecting recipes for a cooking program. You may choose to do this planning all in the first session. Or you may want to select recipes as you go along. Sometimes conversations or new experiences will shift interests in a new direction and changing a plan could be a good idea.

Teaching Tips

Cooking is a wonderful vehicle for self-expression and social interaction. To make it a rewarding experience,

- monitor frustration levels and assist if needed, but allow youth the time and space they need to learn new skills;
- recognize participation and progress toward mastering skills;
- offer lots of encouragement;
- listen;
- relax and show enthusiasm for learning.

A Sample Cooking Series

Yeast Breads emphasizes cooking together as the primary food activity. To acquire independent cooking skills youth need many opportunities to work with recipes and prepare food. Yet other activities will enrich the learning experience. You will need to decide what combination of cooking and additional food activities will work best in your situation.

Six themes provide a structure for A Sample Cooking Series (page 15). These include cultural history, ways of making dough, science, grains, nutrition, and creative fun. Each session features a recipe to make together. The "Explore More" activities provide a variety of ways to promote personal development and increase understanding about food.

Try to involve the youth in selecting one of the "Explore More" activities to do either individually or as a group. Some can be completed in the time it takes bread to rise and bake. Others require more planning and time to do. These activities will increase competencies such as reading recipes and product labels, understanding functions of ingredients, researching information and community resources, giving public presentations, relating to others, and doing community service.

More Information

You don't need to be a nutritional "expert" to create a successful cooking program for youth. You do need a willingness to learn and the ability to find reliable information.

These information sheets provide some quick basics to give the adult facilitator a broader context for the activities in *Yeast Breads*.

Introducing the Food Guide Pyramid—a general guide for choosing healthy diets

Nutrients and What They Do—a simplified chart that connects nutrients to the Food Guide Pyramid

A Cook's Guide to Cleanliness—tips for handling food safely

What's in a Recipe—a description of basic ingredients and their functions in batters and doughs

Ways of Making Yeast Bread—a description of basic methods for handling yeast and dough

Yeast Bread Baking Tips—useful things to know about mixing and handling dough

Grain Glossary—a brief dictionary of grains and grain products

Storybooks about Bread—an annotated listing of children's storybooks

Resource Connections—an annotated listing of curricula, children's cookbooks, and web sites with recipes, bread baking tips, history, and more

A Cook's Language and Tools—a brief cooking dictionary

What's Your Choice?

Yeast Bread Recipe Selection

Your Name _____

Help select recipes for six cooking sessions. Read over the following recipe choices, decide what you are most interested in making, and list your choices here:

1. <u>Soft Pretzels</u> 2. _____	3. _____ 4. _____	5. _____ 6. _____
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Anadama Rolls

A cornmeal bread with a name linked to colonial American legend

Apple Raisin Bread

A great way to enjoy using locally grown apples

Bread-in-a-Bag

A way to make bread without a mixing bowl!

Cornell Bread

A bread that made history with three special ingredients

Cornell Bread Variety

A whole wheat bread for each day of the week

Crisp Flavored Breadsticks

A flavorful dough made with herbs, spices, and cheese

Dilly Bread

A no-knead casserole bread flavored with a popular herb

Hot Cross Buns

Sweet bread made famous in an old English nursery rhyme

Italian Bread

A popular bread with just the most basic ingredients

Jalapeño Cheese Bread

A bread that will wake up your taste buds in just one bite

Mixed Grain Bread

Great flavor from cornmeal, rye, and whole wheat

Oatmeal Bread

A hearty whole grain bread

Pizza Snack Sticks

The flavor of pizza with a twist

Pumpernickel Bread

Rye, cocoa, coffee, and molasses used to create a dark, dense, richly flavored bread

Rye Batter Bread

A time-saving recipe without the kneading and second rising

Soft Pretzels

A simple recipe that begs for your own creative touch

Swedish Limpa Bread

The flavors of rye, orange, and caraway blended into European tradition

Whole Grain Rolls

Dough mixed one day and baked the next with refrigerator rising

Whole Wheat Bread

A great way to enjoy homemade bread with more fiber

Whole Wheat Pitas

The bread that bakes with a hole inside

Record Sheet

Evaluate Your Skills and Experiences with Yeast Breads

Four recipes I made:

1. _____
2. _____
3. _____
4. _____

Something I learned about bread and healthy eating:

Something I did to share what I learned with someone:

The number of times I made bread: _____

My favorite recipe and why I like it best:

Something I did to learn more about yeast breads:

Three things I learned about making bread:

1. _____
2. _____
3. _____

What I enjoyed most about making and learning about yeast breads:

Something I learned about bread ingredients:

Something I learned about handling dough:

Your name: _____

Your age: _____

Date: _____

County where you live: _____

Score Sheet
Yeast Breads
(loaf, shaped, rolls)

	Ratings*			Comments
	1	2	3	
Outside Characteristics				
color (typical of kind)				
uniform shape (typical of kind)				
uniform size				
Inside Characteristics				
thin, tender crust				
tender, springy crumb				
neither dry nor doughy				
small, even cells or holes				
color (even, typical of kind)				
Flavor				
well blended (typical of kind)				
no off-flavors				
Recipe Card				
clear, legible, complete				

* 1 = well done; 2 = good; 3 = could improve

General Comments:

Evaluation Form

Name: _____ Date: _____

Phone, e-mail, address: _____

Please take a few minutes to tell us how well *Yeast Breads* met your needs and how it could be improved for working with children ages 9 to 12. Return to this form to your local Cornell Cooperative Extension office or to *Cooking Up Fun!*, 308 MVR Hall—DNS, Cornell University, Ithaca, NY 14853.

About Yourself

<input type="checkbox"/> 4-H leader <input type="checkbox"/> EFNEP/FSNEP educator <input type="checkbox"/> School-age child care provider	<input type="checkbox"/> Classroom teacher <input type="checkbox"/> Home schooling parent <input type="checkbox"/> Parent/guardian	<input type="checkbox"/> Other _____
---	--	--------------------------------------

Youth Participation: Briefly describe the program(s) in which you used this resource.

Description of setting	Description of children	Number of participants
<input type="checkbox"/> School-age child care <input type="checkbox"/> 4-H club <input type="checkbox"/> 4-H EFNEP <input type="checkbox"/> Community youth program <input type="checkbox"/> Parenting program <input type="checkbox"/> Camp <input type="checkbox"/> Classroom <input type="checkbox"/> Other _____	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> African American <input type="checkbox"/> Caucasian <input type="checkbox"/> Hispanic <input type="checkbox"/> Native American <input type="checkbox"/> Other _____	9-year-olds _____ 10-year-olds _____ 11-year-olds _____ 12-year-olds _____ Other _____

Your Use of *Yeast Breads*: Check all that apply.

How I used the teaching guide:	How I conducted an educational program:
<input type="checkbox"/> I created a new program for youth. <input type="checkbox"/> I used parts in existing programs for youth. <input type="checkbox"/> I involved youth in planning the program. <input type="checkbox"/> I used the Sample Cooking Series. <input type="checkbox"/> I would use this teaching guide again. <input type="checkbox"/> I shared this teaching guide with another educator.	Number of times we met: _____ How frequently we met: <input type="checkbox"/> daily <input type="checkbox"/> weekly <input type="checkbox"/> monthly Length of each session: _____ hour(s). Where we met: _____ Other comments: _____

How would you rate *Yeast Breads*? EXCELLENT GOOD FAIR POOR

Did you receive any training for using *Yeast Breads*? NO YES—where? _____

What did you especially like about *Yeast Breads*?

How could we improve *Yeast Breads*?



A Sample Cooking Series



Explore Cultural History

A Slice in Time

Bread embraces the history of civilization. As early as 8000 B.C. people were mixing crushed grain with water and heating it over a fire. By 2000 B.C. Egyptians were making yeast-leavened bread. From mixing and baking among the rocks to today's bread machines, bread baking is a cultural feast to enjoy.

Make Soft Pretzels

The Soft Pretzel recipe is a good choice to start a cooking series because it is relatively quick and easy to make. Cultural connections range from ancient folklore to popular fast food snacking.

Share Experiences

Some conversation starters are: Tell me what you know about pretzels. How do you think they got their distinctive shape and name? What types of pretzels are there? What ingredients do you think are in pretzels?

Make the Recipe

Read the recipe together and involve youth in demonstrating new techniques.

Evaluate the Experience

Talk about the process of making the recipe as well as the bread. Remember that a product failure is a natural first step toward success.

Promote Independent Cooking

Encourage youth to make the recipe at home to master skills and gain the confidence to make it on their own.

Explore More

Have youth choose one activity to do on their own or as a group:

Read *Everybody Bakes Bread* by Norah Dooley. Search out traditions of bread baking in your family or community. Try making one of the recipes in the storybook or another that you find.

Read *Tony's Bread* by Tomie dePaola. Find other folktales about bread. Create a puppet show or skit to tell one of the stories.

Take a trip to another country in cookbooks or online to find out about bread baking traditions. For example, the French created long, thin baguettes; buttery, flaky croissants; and the distinctly shaped brioche.

Interview someone from another country. Find out how bread is the same or different in their "old" and "new" home.

Create a cultural scrapbook with bread recipes and interesting facts about the culture. Share it with a friend.

Create a cultural timeline of bread baking from ancient civilizations to modern times. Give a presentation to a group sharing what you learned.

Create a bread baking festival with friends to share cultural traditions of bread baking.

Choose a storybook about bread and read it to a younger child. Talk about the story and your own experiences making bread.

Identify any places in your community that specialize in selling a bread such as soft pretzels, bagels, or pizza. Interview a manager to learn more about the business, asking questions such as how it started, why it's successful, how recipes are created, and what's involved in daily operations.

Plan your own activity to learn about the cultural history of bread.



Explore Ways of Making Dough

A Slice in Time

The first yeast breads were leavened with wild yeast from the air. And many early breads were batter breads that were not kneaded. Through the years, many methods of mixing dough and making bread have evolved, keeping pace with changing technologies. Each generation adds to the many ways of making dough.

Make Rye Batter Bread

The Rye Batter Bread recipe shows the batter method of making dough using an electric mixer. A mixer simplifies the work of beating the batter. The recipe also includes two flavor variations to show how ingredients can be substituted in recipes.

Share Experiences

Some conversation starters are: Tell me what you know about making yeast bread. What are some different types of breads? How do you think the recipes for Soft Pretzels and Rye Batter Bread might be alike or different?

Make the Recipe

Read the recipe together and involve youth in demonstrating new techniques.

Evaluate the Experience

Talk about the process of making the recipe as well as the bread. Remember a product failure is a natural first step toward success.

Promote Independent Cooking

Encourage youth to make the recipe at home to master skills and gain the confidence to make it on their own.

Explore More

Have youth choose one activity to do on their own or as a group:

Find a recipe for a rye bread that is kneaded. Compare the ingredients to the batter bread recipe. Make the two recipes and compare the ease of preparation and the breads.

Read *The Pizza Book* by Stephen Krensky. Compare the pizza dough method with the batter bread method. Make a list of other main dish foods that use yeast dough.

Read several bread recipes and identify different methods of making dough. Make a poster to show what you learned.

Choose a recipe and brainstorm ideas to simplify the work. Analyze the procedure asking why, what, where, how, when. See if you can rewrite it to make it easier to do.

Find someone who has a bread machine and compare that method of making bread to a traditional method.

Teach a friend or younger child how to make one of your favorite recipes. Explain what you've learned about bread baking.

Interview someone who learned to make bread a generation ago. Talk about different ways of making bread.

Create a timeline to show the evolution of various methods of making dough. Consider new inventions such as refrigerated and frozen dough.

Visit a bakery or supermarket to find out how commercial methods of bread baking compare to those used at home.

Plan your own activity to learn about ways of making dough.



Explore Science

A Slice in Time

The prehistoric people who first experimented with yeast were, in fact, fledgling biotechnologists. Bread baking has its place in history as one of the earliest biotech industries. Yeast is a living organism that transforms dough into leavened bread. Not until 1859 did Louis Pasteur discover how yeast works.

Make Bread-in-a-Bag

The Bread-in-a-Bag recipe is a fun way to try mixing dough. It helps promote "I wonder..." thinking: I wonder what would happen if I mixed the dough in a bag instead of a bowl. Venture into the unfamiliar and help youth enjoy science!

Share Experiences

Some conversation starters are: Tell me what you know about making yeast bread. How does dough rise? What is yeast? What does yeast need to grow? How could you mix dough without a bowl?

Make the Recipe

Read the recipe together and involve youth in demonstrating new techniques.

Evaluate the Experience

Talk about the process of making the recipe, as well as the bread. Remember a product failure is a natural first step toward success.

Promote Independent Cooking

Encourage youth to make the recipe at home to master skills and gain the confidence to make it on their own.

Explore More

Have youth choose one activity to do on their own or as a group:

Find out how sugar affects yeast activity. Label two bowls: (1) yeast, (2) yeast + sugar. Add 1 teaspoon dry active yeast to each bowl. Add 1 teaspoon sugar to one bowl. Measure and pour 1/2 cup warm water in each bowl; stir. Wait 5 minutes and observe the results.

Examine yeast cells. Find someone with a microscope. Start with a yeast-sugar solution (above) and let it stand 30 minutes. Place a drop onto a microscope slide and cover with a cover slip. Look at the yeast at low power and then at high power. Draw and describe what you see.

Compare sugar and flour. Label two 1-quart resealable bags: (1) sugar yeast, (2) flour yeast. Measure one teaspoon rapid-rise yeast into each bag. Add 1/4 cup sugar to one bag and 1/4 cup flour to the other. Push out the air and seal the bags. Place the bags in a warm spot. Observe the results after 1 hour, 2 hours, and overnight.

Examine the effect of temperature on yeast activity. Label three small-neck bottles: (1) warm, (2) hot, (3) cold. Put 1 teaspoon yeast and 1 teaspoon sugar in each bottle. Add 2 tablespoons water of the appropriate temperature to each bottle; warm is 105–115° F. Cover the bottles with balloons and shake gently to mix ingredients. Observe the results at 15, 30, and 60 minutes.

Find out how preheating the oven affects the baking of yeast bread. Make the Bread-in-a-Bag recipe, but divide the dough into two equal portions and shape each into a small loaf. Place one loaf of bread in the oven as the oven heats. Bake the other loaf in a preheated oven. Compare size, texture, and flavor.

Find out how different pans affect bread baking. Find two pans made from different materials such as glass, shiny metal, or dark metal. Make the Bread-in-a-Bag recipe, dividing dough into two different pans. Compare differences in appearance and texture. Describe how different materials affect the transfer of heat.

Plan your own activity to learn more about the science of bread baking.

Session 4

Explore Grains

A Slice in Time

The early breads were made from whole grains. Wheat was the most common grain in Egypt. Europeans made flour from rye, millet, oats, and barley. In colonial America bread was first made from cornmeal.

Make Whole Grain Rolls

The Whole Grain Rolls recipe uses whole wheat flour combined with all-purpose flour. Or it can be made with a combination of whole wheat and rolled oats. Because it uses refrigerator rising, this recipe is easy to mix up one day and bake the next.

Share Experiences

Some conversation starters are: Tell me what you know about grains. What different flours and grains are used in making bread? How is whole wheat flour different from all-purpose flour?

Make the Recipe

Read the recipe together and involve the youth in demonstrating new techniques.

Evaluate the Experience

Talk about the process of making the recipe as well as the bread. Remember a product failure is a natural first step toward success.

Promote Independent Cooking

Encourage youth to make the recipe at home to master skills and gain the confidence to make it on their own.

Explore More

Have youth choose one activity to do on their own or as a group:

Read several recipes or bread labels. Make a list of all the grains and grain products used to make bread.

Obtain some whole grain and learn how to grind it to use in a recipe.

Collect several grains and grain products and find out more about them. Create a display to share what you learn.

Visit a farm or flour mill, or take an online tour, to learn about the production of grains and flours. Share what you learn with someone.

Find out about fiber and why it's an important part of healthy eating. Create a poster or flyer to share what you learned.

By reading labels, try to calculate how much of the recommended 25 to 30 grams of fiber you get from bread in a day. Determine what choices would increase fiber in the diet.

Choose an activity from *The Three Sisters: Exploring an Iroquois Garden* to learn more about corn and its role in Native American culture.

Create an advertisement to convince someone to buy a whole grain bread instead of white bread.

Find out how many loaves of bread can be made from a bushel of wheat.

Identify all the grains that are grown in your community or state. Find out how that compares to another community, state, or country.

Plan your own activity to learn about grains.

Explore Nutrition

A Slice in Time

The story of Cornell Bread dates back to the 1940s. The time was World War II when rationing made meat and other foods scarce and expensive. Clive McCay, professor, Department of Animal Science at Cornell University, researched how to give bread an extra nutritional boost. First sold as Golden Triple Rich Bread, it became known as the Cornell Bread.

Make Cornell Bread

The trio of nutrient fortifiers in Cornell Bread is soy flour, nonfat dry milk, and wheat germ. These ingredients boosted both the protein and vitamin content of white bread. Create a whole wheat version by substituting whole wheat flour for half of the all-purpose flour.

Share Experiences

Some conversation starters are: Tell me what you know about the Food Guide Pyramid. Where does bread belong in the Pyramid? Tell me what you know about nutrients. How is bread part of a healthy diet?

Make the Recipe

Read the recipe together and involve youth in demonstrating new techniques.

Evaluate the Experience

Talk about the process of making the recipe as well the bread. Remember a product failure is a natural first step toward success.

Promote Independent Cooking

Encourage youth to make the recipe at home to master skills and gain the confidence to make it on their own.

Explore More

Have youth choose one activity to do on their own or as a group:

Collect several bread wrappers. Find the ingredient list and the nutrition label on each bread wrapper. Compare them. Describe the nutritional value of bread.

Find a bread wrapper with the Food Guide Pyramid printed on it. Make a chart of all the grain foods (bread, cereal, rice, pasta) you eat during one week. Identify how much of the total is bread. Decide how easy it is to get 6 to 11 servings a day.

Choose a favorite bread recipe. Create an advertisement to promote its nutritional value.

Compare the packaging of several breads. Make a list of all the types of information on bread packages. See if you can find out what is required and what is extra information to help sell the product.

Design your own packaging for a favorite bread recipe.

Read *Bread Bread Bread* by Ann Morris. Make a list of all the ways you eat bread for meals and snacks. Create a new way of eating bread.

Choose an Ingredient Science activity from *Cooking Up Fun! Muffins & More* to learn more about nutrients in bread.

Play Catch the Dragon's Tail in *Cooking Up Fun! A Pyramid of Snacks*. Explain to someone why physical activity is important for good health.

Visit a bakery and find out what workers do to make sure bread stays safe to eat.

Interview a store manager and find out what is involved in selecting which breads to sell. Find out what percent of total bread sales is whole grain bread.

Plan your own activity to learn more about nutrition.



Explore Creative Fun

A Slice in Time

The idea of adding fruits, spices, nuts, and herbs to bread can be traced to the ancient Egyptians. They also created different-shaped loaves, including birds, fish, and cows. Making bread is a great way to share your creative talents!

Make Soft Pretzels

The Soft Pretzel recipe is a good choice to promote creativity. Repeating this recipe from Session 1 serves as an evaluation tool. It's a good way to see if the youth have gained confidence to make it on their own. Or have youth choose their own recipe to explore creative fun.

Share Experiences

Some conversation starters are: Describe a favorite bread. How do you think bakers create new kinds of bread? Why are there so many different recipes for bread? How do you feel about changing recipes to create your own?

Make the Recipe

Read the recipe together and involve youth in demonstrating new techniques.

Evaluate the Experience

Talk about the process of making the recipe as well as the bread. Remember a product failure is a natural first step toward success.

Promote Independent Cooking

Encourage youth to make the recipe at home to master skills and gain the confidence to make it on their own.

Explore More

Have youth choose one activity to do on their own or as a group:

Read several bread recipes. Make a list of extra ingredients used to flavor breads.

Choose a recipe and create a new flavor by changing one or more ingredients.

Choose a shaped bread recipe such as a teddy bear. Create your own shaped bread and share it with a friend.

Read *Walter the Baker* by Eric Carle to a younger child. Then make pretzels together.

Write your own folktale for a shaped bread.

Pick a type of bread and see how many recipes you can find for it. Decide how the recipes are alike and different.

Interview someone who bakes bread. Find out how the person got started and why he or she enjoys baking bread.

Find out how a technology or invention influenced home bread baking. Share what you learned with someone.

Bake a favorite bread for a bake sale or community event or participate in a recipe contest.

Choose a traditional holiday bread to make and give to a neighbor or friend.

Plan your own activity to learn more about the art and creativity of bread baking.



Recipes

Anadama Rolls

Makes 16 rolls

Ingredients

cornmeal	1/2 cup
skim milk	2 cups
molasses	1/3 cup
vegetable oil	1 tablespoon
active dry yeast	1 package
whole wheat flour	1 cup
salt	1 teaspoon
all-purpose flour	2 1/2 to 3 cups
cornmeal	1 to 2 tablespoons
egg	1

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, saucepan, wooden spoon, large mixing bowl, clean towel, cup, fork, pastry brush, baking sheet, pot holders, oven, wire rack

To Prepare

1. Measure 1/2 cup cornmeal in small saucepan. Slowly stir in milk. Bring to a boil over medium heat, stirring constantly.
2. Pour cornmeal mixture into large bowl. Stir in molasses and oil. Cool to lukewarm (105–115° F).
3. Stir yeast into cornmeal mixture; let stand 5 minutes.
4. Add whole wheat flour and salt. Mix in enough all-purpose flour, 1/2 cup at a time, to form a sticky but kneadable dough.
5. Knead dough on lightly floured surface about 10 minutes. Dough should become soft and elastic but may be somewhat sticky.
6. Place dough in lightly oiled bowl, turning to oil top. Cover bowl with clean towel; let rise in warm place until double, about 1 hour.
7. Punch dough down. Sprinkle baking sheet with 1 to 2 tablespoons cornmeal. Divide dough into 16 pieces, forming each into a smooth ball. Place balls on baking sheet, about 1 1/2 inches apart. Cover with clean towel; let rise until almost double, about 30 minutes.
8. Preheat oven to 375° F. Beat egg in a cup; brush tops of rolls with egg. Bake until golden, about 20 minutes. Place rolls on wire rack to cool.

Apple Raisin Bread

Makes 1 9 x 5-inch loaf

Ingredients

active dry yeast	1 package
warm water (105–115° F)	1 cup
nonfat dry milk	3 tablespoons
sugar	1/3 cup
margarine	1/4 cup
salt	1 teaspoon
egg	1
all-purpose flour	3 1/2 to 4 cups
sugar	2 tablespoons
cinnamon	2 teaspoons
apples	2 (1 1/2 cups chopped)
raisins	1/2 cup

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, clean towel, 9 x 5-inch loaf pan, oven, pot holders, wire rack

To Prepare

1. Dissolve yeast in warm water in large mixing bowl.
2. Stir nonfat dry milk, sugar, margarine, salt, egg, and 2 cups flour into dissolved yeast. Beat until smooth. Stir in enough remaining flour to make dough stiff enough to knead.
3. Turn onto lightly floured surface; knead until smooth and elastic, about 5 minutes.
4. Place dough in lightly oiled bowl, turning to oil the top. Cover with clean towel; let rise in warm place until double, about 1 1/2 hours.
5. Punch down dough; turn onto lightly oiled surface. Roll dough into 18 x 10-inch rectangle.
6. Mix sugar and cinnamon. Chop apples. Grease 9 x 5-inch pan.
7. Sprinkle cinnamon sugar mixture evenly over dough. Spread apples and raisins to within one inch of edges. Roll up, beginning with one 10-inch side of rectangle and shaping to fit pan. Cover with clean towel; let rise in warm place until double, about 1 hour.
8. Preheat oven to 375° F. Bake 40 to 45 minutes or until bread sounds hollow when tapped. Cover loosely with foil if bread browns too quickly. Remove bread from pan and cool on wire rack.

To make rolls: Roll up 18-inch side of dough. Cut into 18 1-inch slices. Fill two 9-inch round pan or one rectangular pan with the rolls. Bake at 375° F, 20 to 25 minutes. Makes 18 rolls.

Bread-in-a-Bag

Makes 1 8 x 4-inch loaf

Ingredients

all-purpose flour	2 cups
rapid-rise yeast	1 package
sugar	3 tablespoons
nonfat dry milk	3 tablespoons
salt	1 teaspoon
very warm water (125–130° F)	1 cup
vegetable oil	3 tablespoons
whole wheat flour	1 cup

Equipment

1-gallon resealable freezer bag, measuring cups, measuring spoons, liquid measuring cup, thermometer, clean towel, rolling pin, 8 x 5-inch loaf pan, oven, pot holders, wire rack

To Prepare

1. In a large zip-top bag, measure 1 cup all-purpose flour, yeast, sugar, nonfat dry milk, and salt. Seal bag. Shake and squeeze bag to blend ingredients.
2. Open the bag and add water and oil. Reseal bag. Continue mixing by shaking and squeezing the bag.
3. Open the bag and add 1 cup whole wheat flour and enough all-purpose flour to make a stiff dough (less than 1 full cup.)
4. Squeeze air from bag and reseal it. Continue squeezing until bag pulls away from dough.
5. Remove dough from bag and place on lightly floured surface. Knead dough 5 minutes or until smooth and elastic. Cover dough with clean towel; let rest 10 minutes.
6. Shape dough and place in 8 x 5-inch pan. Cover with clean towel; let rise in warm place until double, about 1 hour.
7. Preheat oven to 400° F. Bake 30 to 35 minutes or until bread sounds hollow when tapped. Remove bread from pan and cool on wire rack.

Cornell Bread

Makes 1 9 x 5-inch loaf

Ingredients

active dry yeast	1 package
warm water (105–115° F)	1 1/2 cups
honey or sugar	1 tablespoon
salt	1 teaspoon
vegetable oil	1 tablespoon
all-purpose flour	3 to 3 1/2 cups
full-fat soy flour	1/4 cup
nonfat dry milk	1/3 cup
wheat germ	2 tablespoons

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, 2 large mixing bowls, wooden spoon, clean towel, 1 9 x 5-inch loaf pan, oven, pot holders, wire rack

To Prepare

1. **Dissolve** yeast in warm water in a large mixing bowl. Stir in honey, salt, and oil.
2. **Combine** 1 1/2 cups flour, soy flour, nonfat dry milk, and wheat germ in another large bowl.
3. **Add** flour mixture to yeast mixture. Stir until mixture is smooth. Add just enough additional flour to make a dough stiff enough to knead.
4. **Turn** dough onto lightly floured surface. Knead until smooth and elastic, about 10 minutes.
5. **Place** dough in a lightly oiled bowl; turn to oil top. Cover with clean towel; let rise in warm place until double, about 1 hour.
6. **Punch** dough down and turn onto clean surface. **Shape** dough and place in 9 x 5-inch pan. Cover with clean towel; let rise in warm place until double, about 1 hour.
7. **Preheat** oven to 400° F. Bake 30 to 35 minutes or until bread sounds hollow when tapped. Remove bread from pan and cool on wire rack.

The Cornell Formula: For each 2 cups of flour add 2 1/2 tablespoons soy flour, 4 tablespoons nonfat dry milk, and 1 tablespoon wheat germ.

Cornell Bread Variety

Makes 1 9 x 5-inch loaf

Ingredients

active dry yeast	1 package
warm water (105–115° F)	1 1/4 cups
honey	2 tablespoons
vegetable oil	1 tablespoon
all-purpose flour	1 1/2 to 2 cups
whole wheat flour	1 1/2 cups
full-fat soy flour	1/4 cup
nonfat dry milk	1/3 cup
wheat germ	2 tablespoons
salt	1 teaspoon

Create-a-Flavor Changes

Add your own ideas, too!

Seeds and Cheese. Reduce water to 3/4 cup. Reduce honey to 1 tablespoon. Combine 1/4 cup sunflower seeds, 2 tablespoons poppy seeds, and 2 tablespoons sesame seeds in small bowl. Add seed mixture with 3/4 cup cottage cheese after step 2.

Tomato. Reduce water to 1/4 cup. Reduce honey to 1 tablespoon. Puree 2 to 3 tomatoes (1 cup puree) in food processor. Add tomatoes and 3/4 teaspoon oregano after step 2.

Applesauce. Reduce water to 1/4 cup. Add 1 cup applesauce after step 2.

Oat Bran. Add 1/2 cup oat bran with flours in step 2.

Carrot Poppy Seed. Reduce honey to 1 tablespoon and add 1 tablespoon molasses. Add 1/2 cup grated carrot and 3 tablespoons poppy seeds after step 2.

Sweet Potato Rolls. Use 3/4 cup water. Add 1/2 cup cooked and mashed sweet potatoes after step 2.

To Prepare

1. **Dissolve** yeast in warm water in large mixing bowl. Add honey and oil.
2. Combine 1 cup all-purpose flour, 1 cup whole wheat flour, soy flour, nonfat dry milk, wheat germ, and salt in another large bowl. Add to yeast mixture; stir vigorously for 2 minutes.
3. Stir in 1/2 cup whole wheat flour and just enough additional flour to make dough stiff enough to knead.
4. Turn dough onto lightly floured surface. Knead until smooth and elastic, about 10 minutes.
5. Place dough in lightly oiled bowl; turn to oil top. Cover with clean towel; let rise in warm place until double, about 1 hour.
6. Punch down dough. Shape dough and place in greased 9 x 5-inch pan. Cover with clean towel; let rise in warm place until double, 45 to 60 minutes.
7. Preheat oven to 350° F. Bake 50 to 60 minutes or until bread sounds hollow when tapped. Remove bread from pan and cool on wire rack.

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, 2 large mixing bowls, wooden spoon, clean towel, 1 9 x 5-inch loaf pan, oven, pot holders, wire rack

Crisp Flavored Breadsticks

Makes 20 breadsticks

Ingredients

active dry yeast	1 1/4 teaspoons (1/2 package)
warm water (105–115° F)	3/4 cup
sugar	1/2 teaspoon
grated Parmesan cheese	1/4 cup
salt	3/4 teaspoon
basil	1/2 teaspoon
oregano	1/2 teaspoon
black pepper	1/4 teaspoon
garlic powder	1/8 teaspoon
vegetable oil	2 tablespoons
all-purpose flour	2 to 2 1/2 cups
egg white	1
water	1 teaspoon

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon or mixer, clean towel, baking sheet, baking pan, pastry brush, oven, pot holders, wire rack

To Prepare

1. **Dissolve** yeast in warm water in large mixing bowl.
2. Stir in sugar, cheese, salt, basil, oregano, pepper, garlic powder, and oil. Beat in 1 1/2 cups flour gradually, mixing 100 strokes by hand, or 2 minutes on medium speed of electric mixer. Stir in enough additional flour to make dough stiff enough to knead.
3. Turn dough onto lightly floured surface. Knead until smooth and elastic, about 5 to 8 minutes.
4. Place dough in lightly oiled bowl, turning to oil top. Cover with clean towel; let rise in warm place until double, about 1 hour.
5. Punch down dough; turn onto lightly oiled surface. Let rest 5 minutes.
6. Oil baking sheets lightly. Roll dough into 8 x 10-inch rectangle. Cut into 20 1/2-inch sticks. Twist sticks and place about 1 inch apart on baking sheets. Let rise uncovered in warm place for 20 minutes.
7. Pour a small amount of water in baking pan; place on bottom rack of oven. Preheat oven to 400° F.
8. Mix egg white and water; brush on breadsticks. Bake 20 to 25 minutes or until browned and crisp. Place breadsticks on wire rack to cool.

Dilly Bread

Makes 1 8-inch-round loaf

Ingredients

active dry yeast	1 package
warm water (105–115° F)	1/4 cup
cottage cheese, heated to lukewarm	1 cup
margarine	1 tablespoon
sugar	2 tablespoons
salt	1 teaspoon
minced onion	1 tablespoon
dillweed	1 1/2 teaspoons
baking soda	1/4 teaspoon
whole wheat flour	1 cup
all-purpose flour	1 1/2 cups

To Prepare

1. **Dissolve** yeast in warm water in large mixing bowl.
2. Add cottage cheese and margarine, mixing until well blended. Add sugar, salt, onion, dillweed, and baking soda. Mix in the flours gradually to form a stiff dough; beat well. Cover with clean towel; let rise in warm place until double, about 60 minutes.
3. **Stir dough down** and place in greased 2-quart round casserole dish. Cover with clean towel; let rise in warm place until double, about 40 minutes.
4. **Preheat** oven to 350° F. Bake 40 to 50 minutes. Remove bread from dish and cool on wire rack.

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, clean towel, 2-quart round casserole dish, oven, pot holders, wire rack

Hot Cross Buns

Makes 18 buns

Ingredients

active dry yeast	1 package
warm water (105-115° F)	1 1/2 cups
sugar	1/4 cup
nonfat dry milk	1/2 cup
egg	1
vegetable oil	1/4 cup
salt	1/4 teaspoon
cinnamon	1 teaspoon
allspice	1/4 teaspoon
all-purpose flour	5 to 5 1/2 cups
raisins	1 cup
milk	2 tablespoons
sugar	1 tablespoon

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon or mixer, clean towel, 2 baking sheets, sharp knife, baking pan, pastry brush, oven, pot holders, wire rack

To Prepare

1. Dissolve yeast in warm water in large bowl.
2. Add sugar, nonfat dry milk, egg, oil, salt, cinnamon, allspice, and 2 1/2 cups of the flour. Mix until smooth; beat 100 strokes by hand or 2 minutes with an electric mixer. Stir in enough additional flour to make a soft dough, stiff enough to knead.
3. Turn dough onto lightly floured surface. Knead until smooth and elastic, about 5 to 8 minutes.
4. Place dough in lightly oiled bowl, turning to oil top. Cover with clean towel; let rise in warm place until double, about 1 to 1 1/2 hours.
5. Punch down dough; turn onto lightly oiled surface. Knead in raisins. Continue kneading until smooth and elastic, about 5 minutes.
6. Divide dough into 18 pieces; form each into a smooth ball. Place rolls 3 inches apart on baking sheets. Cut across top of each roll with a sharp knife. Cover with a clean towel; let rise in warm place until double, about 30 minutes.
7. Oil two baking sheets lightly. Pour a small amount of water in baking pan; place on bottom shelf of oven. Preheat oven to 350° F.
8. Combine milk and sugar; brush buns with mixture. Bake 15 minutes. Brush again with milk mixture; bake 5 to 7 minutes longer, or until brown and shiny. Place buns on wire rack to cool.

Italian Bread

Makes 1 shaped loaf

Ingredients

active dry yeast	1 package
warm water (105–115° F)	1 cup plus 2 tablespoons
salt	1 teaspoon
sugar	1 tablespoon
margarine	1 tablespoon
all-purpose flour	3 to 3 1/2 cups
vegetable oil	
cornmeal	
egg white	1
cold water	1 tablespoon

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon or mixer, clean towel, baking sheet, sharp knife, cup, fork, pastry brush, baking pan, oven, pot holders, wire rack

To Prepare

1. Dissolve yeast in 2 tablespoons warm water in large bowl.
2. Add salt, sugar, margarine, 1 cup water, and 2 cups flour. Beat until well mixed, about 100 strokes by hand or 2 to 3 minutes on medium speed of mixer. Stir in enough additional flour to make dough stiff enough to knead.
3. Turn dough onto lightly floured surface. Knead until smooth and elastic, 5 to 8 minutes.
4. Form dough into a ball. Cover with clean towel; let rest 20 minutes.
5. Oil baking sheet lightly; sprinkle with cornmeal.
6. Shape dough into a long loaf (about 12 inches) with tapered ends; place on baking sheet. Brush loaf with oil. Cover with clean towel; let rise in warm place until double, about 1 hour.
7. Pour a small amount of water in baking pan; place on bottom rack of oven. Preheat oven to 425° F.
8. Make 3 to 4 shallow diagonal cuts across top of dough with a sharp knife. Bake 20 minutes.
9. Mix egg white and cold water. Remove bread from oven and brush top with egg mixture. Bake 5 to 12 minutes longer or until golden brown. Place bread on a wire rack to cool.

Jalapeño-Cheese Bread

Makes 1 round loaf

Ingredients

all-purpose flour	2 1/2 cups
whole wheat flour	1 cup
sugar	1 tablespoon
salt	1 teaspoon
canned, chopped jalapeño peppers	2 to 3 tablespoons
sharp cheddar cheese, grated	1 cup
rapid-rise yeast	1 package
very warm water (125–130° F)	1 cup

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, 1 1/2-quart casserole dish, clean towel, aluminum foil, oven, pot holders, wire rack

To Prepare

1. Mix 1 3/4 cups all-purpose flour, whole wheat flour, sugar, salt, jalapeño peppers, cheese, and yeast in large bowl. Add water, mixing until well blended. Stir in enough additional flour to make dough stiff enough to knead.
2. Turn dough onto lightly floured surface. Knead until smooth and elastic, about 8 to 10 minutes. Cover with clean towel; let rest 10 minutes.
3. Shape dough into round ball. Place in greased 1 1/2-quart casserole. Cover with clean towel; let rise in warm place until double, about 40 to 50 minutes.
4. Preheat oven to 350° F. Bake 30 to 35 minutes. Cover loosely with aluminum foil if bread begins browning too quickly. Remove bread from dish and cool on wire rack.

Mixed Grain Bread

Makes 1 9 x 5-inch loaf

Ingredients

yellow cornmeal	1/4 cup
brown sugar	1/4 cup, packed
salt	1 teaspoon
vegetable oil	2 tablespoons
boiling water	1 cup
active dry yeast	1 package
warm water (105–115° F)	1/4 cup
whole wheat flour	1/3 cup
rye flour	1/4 cup
all-purpose flour	2 1/4 to 2 3/4 cups

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, clean towel, 9 x 5-inch loaf pan, aluminum foil, oven, pot holders, wire rack

To Prepare

1. **Mix** cornmeal, brown sugar, salt, and oil with boiling water, cool to lukewarm (105–115° F).
2. Dissolve yeast in 1/4 cup warm water; stir into cornmeal mixture. Add whole wheat and rye flours and mix well. Stir in enough all-purpose flour to make dough stiff enough to knead.
3. Turn dough onto lightly floured surface. Knead until smooth and elastic, about 5 to 10 minutes.
4. Place dough in lightly oiled bowl, turning to oil top. Cover with clean towel; let rise in warm place until double, about 1 hour.
5. Punch dough down; turn onto clean surface. Cover with clean towel; let rest 10 minutes. Shape dough and place in greased 9 x 5-inch pan. Cover with clean towel; let rise until almost double, about 1 hour.
6. Preheat oven to 375° F. Bake 35 to 45 minutes or until bread sounds hollow when tapped. Cover with aluminum foil during baking if bread is browning too quickly. Remove bread from pan and cool on wire rack.

Oatmeal Bread

Makes 1 9 x 5-inch loaf

Ingredients

rolled oats	1 cup
salt	1 teaspoon
boiling water	1 1/2 cups
active dry yeast	1 package
warm water (105–115° F)	1/4 cup
light molasses	1/4 cup
vegetable oil	1 1/2 tablespoons
whole wheat flour	2 cups
all-purpose flour	2 to 2 1/2 cups

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, small bowl, wooden spoon, clean towel, 9 x 5-inch loaf pan, aluminum foil, oven, pot holders, wire rack

To Prepare

1. **Combine** rolled oats and salt in large mixing bowl. Stir in boiling water; cool to lukewarm (105–115° F).
2. Dissolve yeast in 1/4 cup warm water in small bowl.
3. Add yeast water, molasses, and oil to cooled oatmeal mixture. Stir in whole wheat flour and 1 cup all-purpose flour. Add additional all-purpose flour to make dough stiff enough to knead.
4. Knead dough on lightly floured surface until smooth and elastic, about 5 minutes.
5. Place dough in lightly oiled bowl, turning to oil top. Cover with clean towel; let rise in warm place until double, about 1 hour.
6. Punch dough down; turn onto clean surface. Shape dough and place in greased 9 x 5-inch pan. Cover with clean towel; let rise in warm place until double, about 1 hour.
7. Preheat oven to 375° F. Bake 50 minutes or until bread sounds hollow when tapped. Cover with aluminum foil during baking if bread is browning too quickly. Remove from pan and cool on wire rack.

Pizza Snack Sticks

Makes 16 sticks

Ingredients

all-purpose flour	1 1/2 to 1 3/4 cups
rapid-rise yeast	1 package
sugar	1 tablespoon
chili powder	1/2 teaspoon
salt	1/2 teaspoon
onion powder	1/2 teaspoon
hot water (125–130° F)	3/4 cup
vegetable oil	2 teaspoons
grated cheddar cheese	1/2 cup
cornmeal	1/2 cup

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, wooden spoon, large mixing bowl, electric mixer, clean towel, baking sheet, fork, sharp knife, oven, pot holders, wire rack

To Prepare

1. Stir together 3/4 cup flour, yeast, sugar, chili powder, salt, and onion powder in large mixing bowl. Add water and oil; mix with electric mixer on low speed. Continuing mixing at high speed for 3 minutes.
2. Stir in cheddar cheese, cornmeal and 1/2 cup flour. Add additional flour as needed to make dough stiff enough to knead.
3. Knead on lightly floured surface until dough forms a smooth ball, about 1 minute.
4. Place dough in lightly oiled bowl, turning to oil top. Cover bowl with clean towel; let set in very warm place (80–90° F) for 15 minutes.
5. Preheat oven to 475° F. Grease baking sheet lightly.
6. Punch dough down; place on baking sheet. Press out dough to form even layer in pan. Prick dough surface with tines of fork. Cut dough into 16 strips with a sharp knife.
7. Bake 12 to 15 minutes, or until lightly browned. Place sticks on wire rack to cool.

Pumpernickel Bread

Makes 1 round loaf

Ingredients

dark molasses	2 tablespoons
margarine	2 tablespoons
bran cereal (whole bran, not flakes)	1 cup
salt	3/4 teaspoon
unsweetened chocolate	1 square
boiling water	1 1/4 cups
vinegar	2 tablespoons
caraway seeds	1 to 3 teaspoons
instant coffee	1 teaspoon
onion powder	1 teaspoon
active dry yeast	1 package
all-purpose flour	3/4 cup
whole wheat flour	3/4 cup
rye flour	1 1/2 cups

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, clean towel, baking sheet, oven, pot holders, wire rack

To Prepare

1. Combine molasses, margarine, bran, salt, and chocolate in large mixing bowl. Pour boiling water over mixture. Let stand until mixture has cooled to 115° F.
2. Stir in vinegar, caraway seeds, coffee, onion powder, and yeast. Add all-purpose flour, whole wheat flour, and enough rye flour to make a soft dough.
3. Turn dough onto lightly floured surface; let rest 5 minutes. Knead until smooth and elastic, about 10 minutes.
4. Place dough in lightly oiled bowl; turn to oil top. Cover bowl with clean towel; let rise in warm place until doubled, about 1 hour.
5. Punch down dough. Shape into a round and place on baking sheet. Cover with clean towel; let rise in warm place until double, about 1 hour.
6. Preheat oven to 350° F. Bake 45 to 50 minutes.

Rye Batter Bread

Makes 1 8 x 4-inch loaf

Ingredients

active dry yeast	1 package
warm water (105–115° F)	1/2 cup
skim milk	1/2 cup
brown sugar	2 tablespoons
margarine	2 tablespoons
salt	1 teaspoon
all-purpose flour	1 2/3 cups
rye flour	1 cup
caraway seeds	1 tablespoon
milk	1 teaspoon
caraway seeds	1 teaspoon

Create-a-Flavor Changes

Add your own ideas, too!

Poppy Seed Batter Bread. Substitute 1 cup whole wheat flour for rye flour. Substitute 2 tablespoons poppy seeds for caraway seeds.

Orange Raisin Batter Bread. Substitute 1 cup whole wheat flour for rye flour. Increase brown sugar to 1/3 cup. Omit caraway seeds; add 1 1/2 teaspoons grated orange peel and 1/2 teaspoon cinnamon with flour. Add 1/2 to 1 cup when stirring batter down after rising.

To Prepare

1. Dissolve yeast in warm water in small bowl.
2. Pour milk over brown sugar, margarine, and salt in large mixing bowl. Add 1 cup all-purpose flour, 1/2 cup rye flour, and caraway seeds; mix to combine. Add yeast water; mix at medium speed of electric mixer 2 minutes. Add remaining 1/2 cup all-purpose flour and 1/2 cup rye flour; continue mixing until well blended. Cover with clean towel; let rise in warm place until double, about 1 hour.
3. Preheat oven to 350° F. Stir batter down; beat vigorously with wooden spoon for 1 minute. Turn into lightly oiled 8 x 4-inch loaf pan. Brush with milk; sprinkle with caraway seeds.
4. Bake 45 to 50 minutes, until well browned. Remove bread from pan and cool on wire rack.

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, small bowl, electric mixer, wooden spoon, clean towel, 8 x 4-inch loaf pan, pastry brush, oven, pot holders, wire rack

Soft Pretzels

Makes 12 pretzels

Ingredients

all-purpose flour	2 cups
whole wheat flour	2 cups
active dry yeast	1 package
salt	1 teaspoon
very warm water (120–130° F)	1 1/3 cups
vegetable oil	3 tablespoons
honey	1 tablespoon
poppy or sesame seeds	1 tablespoon

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, baking sheet, oven, pot holders, wire rack

To Prepare

1. Preheat oven to 425° F. Grease baking sheet lightly.
2. Stir together 1 cup all-purpose flour, 1 cup whole wheat flour, yeast, and salt. Add water, vegetable oil, and honey; beat 3 to 4 minutes.
3. Add 1 cup whole wheat flour and enough additional all-purpose flour to make a soft yet manageable dough.
4. Turn dough onto lightly floured surface. Knead 8 to 10 minutes until smooth.
5. Divide dough into 12 equal portions. Roll each into a 15-inch rope on lightly oiled surface. Roll lightly in poppy or sesame seeds and form into a pretzel shape. Place pretzels on baking sheet.
6. Bake 15 to 20 minutes. Place pretzels on wire rack to cool.

Swedish Limpa Bread

Makes 1 8-inch-round loaf

Ingredients

all-purpose flour	3 1/4 cups
rye flour	1 cup
brown sugar	2 tablespoons
salt	1 teaspoon
caraway seeds	1 teaspoon
grated orange peel	1 tablespoon
rapid-rise yeast	1 package
vegetable oil	1 tablespoon
hot water (125–130° F)	1 1/3 cups

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, baking sheet, clean towel, knife, oven, pot holders, wire rack

To Prepare

1. Combine 2 1/2 cups all-purpose flour, rye flour, brown sugar, salt, caraway seeds, orange peel, and yeast in a large bowl. Add oil and water. Add just enough additional flour to make dough stiff enough to knead.
2. Knead dough on lightly floured surface until smooth and elastic, 8 to 10 minutes.
3. Shape dough into round loaf; place on lightly greased baking sheet. Cover with clean towel; let rise in warm place until double, about 40 to 50 minutes.
4. Preheat oven to 400° F. Cut across top of dough. Bake 30 minutes or until bread sounds hollow when tapped. Place bread on wire rack to cool.

Whole Grain Rolls

Makes 12 rolls

Ingredients

active dry yeast	1 package
nonfat dry milk	1/3 cup
sugar	1 tablespoon
all-purpose flour	1 1/2 cups
very warm water (120–130° F)	1 cup
whole wheat flour	1 1/2 cups
vegetable oil	2 tablespoons
salt	1 1/2 teaspoons

Create-a-Flavor Changes

Add your own ideas, too!

Oatmeal Whole Wheat Rolls. Reduce whole wheat flour to 1 cup. Add 3/4 cup rolled oats with all-purpose flour in step 1. Stir in 1/2 cup whole wheat flour with additional all-purpose flour in step 3.

To Prepare

1. Combine yeast, dry milk, sugar, and 1 cup all-purpose flour in large mixing bowl. Add water. Beat 2 minutes with an electric mixer, scraping bowl often.
2. Add 1/2 cup whole wheat flour, oil, and salt; beat 2 minutes.
3. Stir in by hand 1 cup whole wheat flour and enough additional all-purpose flour to make dough stiff enough to knead.
4. Knead on lightly floured surface until smooth and elastic, about 10 minutes.
5. Place dough in lightly oiled bowl, turning to oil top. Cover bowl with clean towel; let rest 20 minutes.
6. Divide dough into 12 parts. Shape into 12 rolls. Place rolls on baking sheet. Brush rolls *lightly* with vegetable oil to prevent surface from drying out. Cover very loosely with plastic wrap. Let rise in refrigerator 2 to 24 hours.
7. Remove rolls from refrigerator; let stand uncovered 10 minutes while oven is heating. Preheat oven to 375° F.
8. Bake rolls 15 to 20 minutes.

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, electric mixer, rubber scraper, wooden spoon, clean towel, baking sheet, pastry brush, plastic wrap, oven, pot holders, wire rack

Whole Wheat Bread

Makes 1 9 x 5-inch pan

Ingredients

active dry yeast	1 package
warm water (105-115° F)	1/2 cup
skim milk (105-115° F)	1/2 cup
sugar	2 tablespoons
whole wheat flour	3 to 3 1/2 cups
egg	1
vegetable oil	2 tablespoons
salt	1 teaspoon

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon or mixer, clean towel, 9 x 5-inch loaf pan, oven, pot holders, wire rack

To Prepare

1. Dissolve yeast in warm water in large mixing bowl. Add milk and sugar. Beat in 1 1/2 cups flour and egg. Beat 100 strokes by hand or 2 to 3 minutes on medium speed of mixer. Cover bowl with clean towel; let rest 20 to 30 minutes.
2. Mix in oil, salt, and enough remaining flour to make dough stiff enough to knead.
3. Turn dough onto lightly floured surface. Knead until smooth and elastic, 10 to 15 minutes.
4. Place dough in lightly oiled bowl; turn to oil top. Cover bowl with clean towel; let rise in warm place until double, about 1 hour.
5. Punch dough down. Turn onto clean surface; let rest 5 minutes.
6. Shape dough and place in greased 9 x 5-inch pan. Cover with clean towel; let rise in warm place until double, about 1 hour.
7. Preheat oven to 375° F. Bake 10 minutes. Reduce heat to 350° F; bake 20 to 30 minutes longer or until bread sounds hollow when tapped. Remove bread from pan and cool on wire rack.

Substitution: Use 2 egg whites in place of one whole egg. Loaf will be somewhat smaller with a chewier texture.

Whole Wheat Pitas

Makes 12 pita pockets

Ingredients

sugar	1 teaspoon
salt	1 1/2 teaspoons
rapid-rise yeast	1 package
whole wheat flour	1 1/2 cups
all-purpose flour	2 to 2 1/2 cups
hot water (125–130° F)	1 1/3 cups

Equipment

measuring cups, measuring spoons, liquid measuring cup, thermometer, large mixing bowl, wooden spoon, clean towel, rolling pin, baking sheet, oven, pot holders, wire rack

To Prepare

1. Mix sugar, salt, yeast, whole wheat flour, and 1 1/2 cups all-purpose flour. Add water and stir until well mixed, about 100 strokes. Stir in enough of the remaining all-purpose flour to make dough stiff enough to knead.
2. Turn dough onto lightly floured surface. Knead until smooth and elastic, 8 to 10 minutes.
3. Form dough into a ball; cover with clean towel. Let dough rest 30 minutes.
4. Put oven rack in lowest position. Preheat oven to 500° F. Place a cast iron skillet or baking sheet in the oven to preheat.
5. Punch dough down and divide into 12 equal pieces. Form each piece into a smooth circle. Roll out each circle into a 4- to 5-inch circle (about 1/4 inch thick) on a lightly oiled board. Roll from the center to edge, turning circles over a few times to shape well. Dough may wrinkle as it springs back from rolling; try to keep circles as smooth as possible. Smooth circles will puff more evenly when baking. Alternate shaping with hands and using rolling pin until elasticity of dough decreases.
6. Place pitas 2 inches apart on preheated baking sheet. Bake 3 to 5 minutes or until puffed. Repeat with remaining dough.



More Information

Introducing the Food Guide Pyramid

The Food Guide Pyramid puts the messages of the Dietary Guidelines into a picture. It emphasizes variety and moderation. No one food group is more important than another—for good health you need them all. The Dietary Guidelines are the best, most up-to-date advice from nutrition scientists.

The Pyramid Message

The Food Guide Pyramid suggests eating a variety of foods that together give you all the nutrients you need to maintain health without eating too much fat or sugar. It is not a rigid prescription but a general guide that lets you choose a healthful diet that is right for you.

The Pyramid Shape

The pieces of the pyramid represent both the basic five food groups and the extra fats, oils, and sweets that people commonly eat. The size of each piece indicates the relative amounts to eat. For example, grain, which forms the base, is the largest and has the greatest number of recommended servings.

Small triangle and circle shapes fill the top section of the pyramid. The triangles represent added sugars. The circles represent added and naturally occurring fat and oil. A scattering of these symbols throughout the pyramid indicates that some choices within the five food groups can also be high in fat or added sugars.

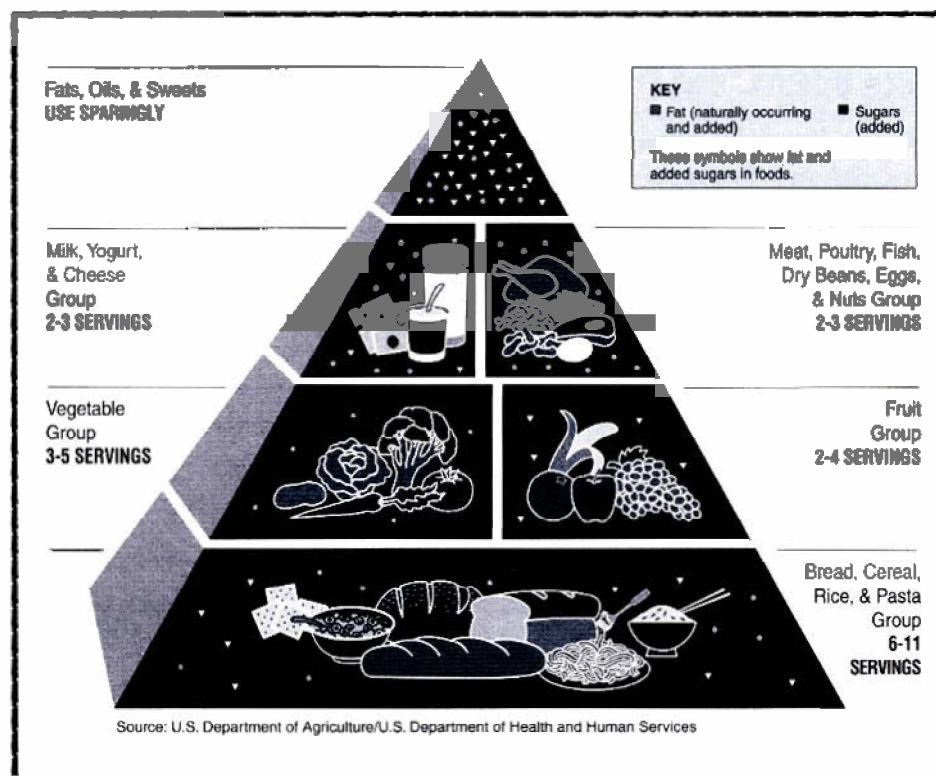
Selections from the food groups fit together like a puzzle to form a healthful overall diet. The first three pieces contain plant foods and should provide the majority of your food choices.

Piece 1: Grains

Choose plenty of grains. Bread, cereal, rice, and pasta form the broad base of the pyramid and should be eaten often. These foods contain lots of complex carbohydrates (starch) and provide many other nutrients as well. The exact mix of nutrients depends on the individual food selected. Whole grain products contain B vitamins and iron; others are often enriched or fortified with these nutrients. Whole grain products are good sources of fiber.

Piece 2: Vegetables

Vegetables contain vitamins, minerals, and fiber. They are naturally low in fat, but you will need to limit fat added during cooking and at the table. Choosing several different vegetables—dark green (spinach, broccoli), deep yellow (carrots, sweet potatoes), starchy (potatoes, corn), and others (tomatoes, lettuce)—will give you a wide variety of nutrients and possible health benefits.



Piece 3: Fruits

Fruits and fruit juices contain important vitamins and minerals. Fresh fruits are good sources of fiber. Choosing fruit canned or frozen in natural juices instead of heavy syrups will limit added sugar. Beverages labeled as “juices” contain more natural juice than those labeled as a “drink” or “cocktail.” Choosing several different fruits and juices will provide a wide variety of nutrients.

Piece 4: Milk

Milk products contain protein, vitamins, and minerals. Milk, yogurt, and cheese are the best sources of calcium (a mineral). To limit fat, choose nonfat or low-fat products.

Piece 5: Meat

Meat, poultry, and fish are rich sources of protein, B vitamins, iron, and zinc. The other foods in this group—dry beans, eggs, and nuts—also contain protein, vitamins, and minerals. To limit fat, choose lean meats and prepare them in low-fat ways (broil, roast, grill, stir-fry). Removing the skin from poultry is another low-fat cooking technique.

Piece 6: Fats, Sweets

The small tip of the pyramid represents the fats, oils, and sugars added to foods. Both sugar and fat provide calories. Foods such as butter, margarine, oil, and salad dressing are often added during cooking or at the table. To reduce unneeded calories, limit the amount you add to foods.

Other foods in this category such as soft drinks and candies are often eaten as snacks. It is all right to eat them once in a while, but they shouldn't crowd out other foods that have more nutrients.

Piecing It Together

Remember to

- choose plant foods (grains, vegetables, and fruits) often.
- choose a variety of foods in each piece of the pyramid.
- choose lower-fat foods from each piece of the pyramid.
choose lower-sugar foods from each piece of the pyramid.
- limit choices from the tip of the pyramid.

Nutrients and What They Do

Food Group	Key Nutrients*	Action in the Body
Grains (<i>bread, cereal, rice, pasta</i>)	Complex carbohydrate, fiber, iron, B vitamins (<i>niacin, riboflavin, thiamin, folic acid</i>)	Carbohydrate is the body's major source of energy. B vitamins help in the body's use of energy. Fiber aids the movement of food through the digestive tract. Iron carries oxygen in red blood cells and muscle cells.
Vegetables	Vitamin A, vitamin C, folic acid (a B vitamin), iron, magnesium, fiber	Vitamin A helps maintain skin and mucous membranes and aids in vision. Vitamin C helps the body heal and fight infections. Folic acid is needed for healthy blood cells and is important for cell division such as in pregnancy and growth. Magnesium is found in bones and is important for muscle and nerve functioning.
Fruits	Vitamin A, vitamin C, potassium, folic acid (a B vitamin), fiber	Potassium maintains the heartbeat, regulates body fluids, and is needed for muscle and nerve functioning.
Meat (<i>meat, poultry, fish, dry beans, eggs, nuts</i>)	Protein, iron, zinc, B vitamins (<i>thiamin, riboflavin, niacin, vitamin B-12</i>)	Protein provides the building blocks needed for growth, replacement, and maintenance of body tissues. Zinc is necessary for healing, taste perception, growth, and sexual development.
Milk (<i>milk, yogurt, cheese</i>)	Calcium, riboflavin (a B vitamin), protein	Calcium is needed for the development and maintenance of healthy bones and teeth. Riboflavin is a B vitamin that helps the body use energy.
"Use Sparingly" (<i>not a food group</i>)	Simple carbohydrates	Simple carbohydrates or sugars provide energy but few other nutrients. Fat is a source of energy and helps in the absorption of certain vitamins.

*There are more than 40 different nutrients with many different functions that are required for good health. Many of these functions are interrelated. Each food group contributes many other nutrients in addition to the "key nutrients" listed here.

Adapted with permission from Connie Liakos Evers, *How to Teach Nutrition to Kids* (Tigard, Ore.: 24 Carrot Press, 1995).

A Cook's Guide to Cleanliness

Step-by-Step to Clean Hands

- Use warm water and soap to create a sudsy lather on your hands.
- Rub hands together for at least 20 seconds.
- Wash hands thoroughly. Work soapsuds in between fingers and around fingernails.
- Rinse the suds off your hands with warm water.
- Finally, dry hands completely on clean paper towels or your own personal towel. Shared towels may spread germs.

The 20-Second Handwashing Rap

(Words in heavy type carry the stronger beat.)

You gotta' wash your hands, and
You **gotta'** wash 'em **right**,
Don't give in to germs
Without a **fight**

Use **water** that's warm
And lots of soapy bubbles,
These are your weapons
for preventing germ troubles.

Don't cut your time short
your **fingers**—get **between**,
It **takes** twenty **seconds**
To **make** sure they're clean

Gotta' wash . . . gotta' wash
Gotta'—**wash**—your—**hands**,
Gotta' wash . . . gotta' wash
Gotta'—**wash**—your—**hands**.

Source: *Operation Risk* (East Lansing: Cooperative Extension, Michigan State University, 1993).

When to Rewash Hands

- After using the bathroom
After blowing your nose, coughing, or sneezing on your hands
- After touching pets

- After touching a cut or open sore
- After handling raw meat, fish, poultry, or eggs

More Tips for Safe Food Handling

- Pull long hair back away from the face.
- Bandage open cuts and sores on hands
Keep counters clean with soap and water.
- Use clean washing and drying cloths.
- Wash knives, cutting boards, and any utensil used with raw meat, poultry, and fish before using them with other foods.

A Bit about Bacteria

Anyone who cooks must deal with an invisible enemy—bacteria—so microscopic that you can't see, smell, or taste it. But bacteria also are so powerful they can cause severe sickness or even death. Anyone who handles food needs to know how to "Fight BAC." That's the slogan for a new public education campaign to prevent foodborne illness.

Bacteria are present naturally in foods. People who handle food can add bacteria by using unclean hands, cutting boards, utensils, countertops, and dish towels. Cleanliness keeps the amount of bacteria as low as possible. Fewer bacteria results in less risk of illness.

Bacteria do not grow well under 40 degrees F or above 140 degrees F. Thorough cooking helps to destroy bacteria in foods. For ground meat, that means cooking to at least 160 degrees F. Recipes that include raw eggs or partially cooked eggs should be avoided. Although bacteria can hitch a ride on any food, more perishable foods—meat, poultry, fish, eggs, and dairy products—require special attention.

Four Steps to Fight BAC

1. Clean: Wash hands and surfaces often.
2. Separate: Don't cross-contaminate.
3. Cook: Cook to proper temperatures.
4. Chill: Refrigerate promptly.



What's in a Recipe

Flour, liquid, fat, sugar, eggs, leavening, and salt are the basic ingredients used in batters and doughs. The amounts of each and how they are mixed together determine the final product. The cooking time and temperature also make a difference. The quality of home-baked products depends on the proportions of ingredients, how they are mixed, cooking temperatures, and times. These relationships affect the color, flavor, texture, shape, and volume.

Flour

Flour contains proteins that combine with liquid to form gluten. This sticky, elastic material gets stronger and more elastic as the batter is stirred or the dough is kneaded. These strands of gluten form a network of cells that expand when heated. Baking "sets" this framework.

Flour also contains starch, which absorbs liquid and swells. When heated, this adds body to the framework of baked foods.

Three common types of flour are available:

All-purpose flour is a blend of hard and soft wheat flours, which makes it versatile for many products. It is usually enriched and may be bleached or unbleached.

Bread flour is made from hard wheat, which is rich in protein and forms strong gluten. It is desirable for yeast breads and rolls.

Cake flour is made from soft wheat, which is lower in protein, so less gluten is developed; thus it produces more tender cakes.

When the same amount of liquid is used, both all-purpose flour and bread flour produce a stiffer dough than cake flour.

Liquid

Some type of liquid is needed to develop the gluten, gelatinize the starch, activate the leavening agent, and dissolve the sugar and salt to distribute them through the batter or dough.

The proportion of water and flour helps determine the amount of gluten formed.

Milk is the most commonly used liquid, although fruit juice and water also can be used. Milk is 87 percent water and also contains protein. Milk tends to give baked products a finer texture, better color, and somewhat different flavor than water.

Fat

Shortening, cooking oil, butter, and margarine make baked products tender and rich. They also help retain freshness and serve to blend and distribute flavorings. When butter is used, it gives a special flavor to the final product.

Since fat is insoluble in any of the other ingredients, it separates the particles of dough. During baking, the fat melts while other ingredients are setting up. It is easy for the leavening gas to expand into the tiny areas of melted fat. Excess fat, however, weakens the gluten structure and can cause the product to decrease in volume or fall.

Vegetable shortening and oils are 100 percent fat. By contrast, butter and margarine are 80 percent fat with 20 percent water and milk solids.

Sugar

Although primarily added for sweetening, sugar has additional functions. Because it caramelizes with heat, sugar helps the product brown during baking. It also increases the tenderness of the product.

Honey, corn syrup, and molasses are sugars and can be substituted for granulated sugar, but the amount of liquid used also must be adjusted. As a guideline, try reducing the liquid by 1/4 cup.

Noncaloric sweetening agents require special recipes. They contribute a sweet flavor but do not tenderize or increase browning. Sometimes they lose their sweetening power and become bitter with heat.

Eggs

By their emulsifying action, egg yolks bring about even distribution of fat in batters and doughs. They promote tenderness and a fine texture. The egg proteins, along with gluten, form the structure of the product.

Beaten eggs, particularly beaten egg whites, aid in leavening because of the formation of tiny air cells. The air expands on heating and steam is formed from the moisture of the egg. As the egg proteins coagulate with heating, the cell walls become set.

Leavening

Leavening is produced by the release and/or expansion of gas or air in a batter or dough. A variety of substances contribute to lighten the batter dough.

Air is incorporated in baking mixtures in several ways. The most common is folding whipped egg whites into the batter. Other ways include beating whole eggs, creaming sugar and fat, and beating the batter itself.

Heating the batter or dough causes the air bubbles to expand, making the batter light. Angel food cakes depend on the incorporation of air for one-half to two-thirds of their leavening.

Baking powder releases gas during mixture and/or baking and is used in most cakes and quick breads. Baking powder contains baking soda (sodium bicarbonate) and acid-producing ingredients. In the presence of moisture and heat, these components react to form carbon dioxide gas, which expands and leavens.

Baking powder contains cornstarch to keep the mixture dry by absorbing moisture and to standardize measuring.

Baking soda is required to neutralize an acidic ingredient such as buttermilk, sour cream, sour milk, or molasses. The combination releases carbon dioxide gas, which leavens the batter or dough.

Steam provides the leavening in batters containing large proportions of liquid, such as popovers and cream puffs. When water is heated, it produces more than 1,600 times its volume in steam.

Yeast is a microscopic plant that grows rapidly in a warm, moist medium. It ferments sugar and/or starch to form carbon dioxide gas and alcohol. The gas is the principal leavener, but the alcohol vaporizes during baking and also helps in leavening.

During baking, the heat expands the gas, stops the yeast action in the raised dough, evaporates the alcohol, and sets the gluten.

Salt

The major function of salt in baked products is to add and enhance flavor. In yeast breads, it helps to control the action of the yeast, thus improving texture.

Ways of Making Yeast Bread

There are many ways to make yeast bread. Some are old and others are very modern. As you read recipes, compare the various methods or combination of methods that are used to make yeast breads. Decide what you like best and add any other methods that you discover.

Traditional Method

This method generally allows the dough to rise twice.

Dissolve active dry yeast in warm water (105–115° F), mix in remaining ingredients, and knead. Allow the dough to double after mixing and again after shaping.

Quick, One-Rise Method

This method cuts the rising time by half.

Mix rapid-rise yeast with some of the dry ingredients and then add very warm liquid (120–130° F). Mix in remaining ingredients and knead. Allow the dough to “rest” for 10 minutes. Shape and let rise until double.

Batter Method

No kneading is done in this method.

Mix ingredients and beat the batter vigorously by hand or with an electric mixer. Let the batter rise until doubled.

Sponge Method

This older method is still a favorite of many, especially for making whole grain breads.

Combine yeast with liquid, sugar, and part of the flour. Let this batter ferment until it is raised, bubbly, and spongelike. Continue making the dough.

Sourdough Starters

You begin with a sponge but let the mixture ferment longer to produce the characteristic sour, tangy odor.

Let sponge mixture stand in a warm place 24 to 48 hours or until it becomes bubbly and sour-smelling. Refrigerate unused starter. Keep it active by using and adding to it weekly.

Refrigerator Rising Method

The rising time happens in the refrigerator.

Mix, knead, and shape dough, allowing a short resting time before shaping. Place shaped dough in the refrigerator. Bake it 2 to 24 hours after refrigerating.

Food Processor

Yeast bread recipes can be adapted to a food processor. The mixing and kneading steps that normally take at least 10 minutes can be reduced to about 2 minutes in a food processor. Rising and baking times will be the same. Follow the manufacturer's directions.

Bread Machines

Bread machines are the most recent innovation for reducing the time of making yeast bread. You add the ingredients and the machine does the mixing, kneading, and baking all in one container. The machines vary from simple models to deluxe models with more elaborate options. Follow the manufacturer's directions.

Yeast Bread Baking Tips

Mixing

Strong beating of dough makes gluten form faster and improves the texture of yeast breads.

- An electric mixer makes the mixing of batter breads easier. Because batter breads are not kneaded, vigorous mixing is needed to develop gluten. The gluten is well formed when dough pulls away from the sides of bowl and begins to form a cohesive ball.
- Add just enough flour when mixing ingredients to make dough easy to handle.

Kneading

Kneading dough develops gluten.

- A resting time of 5 to 10 minutes just before kneading makes some dough easier to handle. Resting allows gases to expand and relax the dough. Resting is particularly useful when shaping dough for rolls or coffee cake.

Steps for kneading dough:

- Work on a clean, lightly floured surface.
Form dough into a round ball.
- Fold it toward you.
- Using the heels of your hands, push dough away with a rolling motion.
Turn dough one-quarter turn.
- Repeat until the dough is smooth and elastic (4 to 10 minutes).
- The trick to kneading is to add only enough flour to keep dough from sticking to your hands or the work surface.
- With practice you will be able to tell how well-kneaded dough should feel:

- Press into the dough with your fingers and it will spring back quickly.
- Observe tiny blisters forming under the surface of dough.
- Feel it change to a smoother, softer dough.
Know that added grains and ingredients change the feel of dough.

Rising

Rising times vary with the recipe and mixing method.

- As dough rises, air pockets develop in dough as gluten stretches; fermentation generates heat and moisture and allows flavors to develop.
- A light coating of oil prevents dough from drying out as it rises. Lightly oil a clean bowl, shape dough into a ball, place it in the bowl, and then, turn the dough to coat surface. Or coat the bowl and dough with nonstick cooking spray.
- A clean towel placed over dough prevents a crust or "skin" from forming. A crusty surface slows rising and causes streaks in bread. Other methods to prevent crusting are to cover loosely with plastic wrap or to cover bowl with a second inverted bowl.
- A temperature of 80 to 85° F is ideal for rising. Dough rises slowly at cooler temperatures, resulting in heavier bread. At warmer temperatures dough develops a "yeasty" aroma and flavor. And if it's too hot, the yeast will die.

If it's not a warm summer day, you need to create the right environment for dough to rise:

- Set the bowl in an unheated oven with the oven light turned on.
- Set the bowl in an unheated oven with a large pan of hot water underneath.

- Fill a large pan two-thirds full of hot water, place a wire rack on top, and set the bowl on the rack.
- Set the bowl in a deep pan of warm water, making sure it's not too hot.

Put the bowl in a draft-free place near (not on) the range, radiator, or wood stove.
- Turn oven to warm (the lowest setting) for 2 to 3 minutes, then turn it off. Place dough inside the warmed oven.
- Let dough rise in a microwave oven or convection oven, following manufacturer's instructions.
- To "let rise until doubled" means the ball of dough will double in size. To test: Press two fingers lightly and quickly 1/2 inch into dough; if the indentation stays, dough is ready to use.
- Sweet dough rises more slowly than dough with a minimum amount of sugar. Small amounts of sugar promote yeast growth, but large amounts slow it down.

Dough with added ingredients such as fruits, nuts, or grains rises more slowly than plain dough. Using rapid-rise yeast in these recipes will decrease rising time.

Shaping

To "punch down dough" means to push your fist into the center of the raised dough, pull edges of dough to the center, and turn it over.

Punching down dough breaks air bubbles into many small ones, helping to give bread a fine texture.

- Shaping dough to fit a loaf pan equalizes gas bubbles in the dough, giving bread a more uniform appearance.

- There are different ways to shape dough. One method commonly used for loaf pans is to roll dough with a rolling pin into a rectangle (width equals pan length; length is double the width). Roll dough tightly, starting at short end. Pinch seam of rolled dough to seal. Then pinch each end. Pat into uniform loaf shape. Place, seam side down, in greased baking pan.
- A 5-minute resting time after punching down dough makes some dough easier to handle. This allows the gluten to relax, making shaping easier.

Baking

Always preheat the oven before baking bread.

- Use an oven thermometer to gauge oven temperature.
- A preheated oven provides the right temperature for "oven spring." That is the final rising during the first 8 to 10 minutes of baking time.
- Oven temperatures vary, so check bread a few minutes before end of baking time.
- If bread is browning too quickly, cover loosely with aluminum foil. Foil prevents the crust from getting darker but allows bread to continue cooking.
- Bread is done if it sounds hollow when tapped on the bottom or sides of loaf. If not, return bread back to pan or set it directly on oven rack for a harder, browner crust.

Grain Glossary

All-purpose flour flour ground from the endosperm of the wheat kernel. The endosperm is separated from the bran and germ during the milling process. All-purpose flour is milled from a mixture of hard wheat and soft wheat; hard wheat contains more protein than soft wheat.

Barley flour flour ground from barley grain. Barley flour needs to be combined with other flours to make enough gluten for yeast bread.

Barley groats kernels of barley from which the outer hulls and seed coats have been removed.

Bleached all-purpose flour flour that is chemically treated to whiten (bleach), mature, or both. Bleaching agents evaporate without affecting nutrient content or baking quality of flour. Maturing agents alter the proteins in flour, making the dough more elastic; nutrient content is unchanged.

Bread flour flour that is milled from hard wheat. Bread flour contains more protein than all-purpose flour. This gluten-forming property makes it a good choice for yeast breads.

Buckwheat flour flour milled from the buckwheat plant. Buckwheat flour needs to be combined with other flours to make enough gluten for yeast bread.

Buckwheat groats a product of buckwheat made by cracking the whole grains into small pieces. It is sometimes called *kasha*.

Bulgur a product of wheat. The whole kernel of wheat is soaked, cooked, and dried. Part of the bran is removed, and the remaining kernel is cracked into small pieces. It absorbs twice its volume in water.

Cake flour flour milled from soft wheat. The low protein content of cake flour does not form enough gluten to make yeast bread.

Corn flour flour ground from corn with the germ and bran removed. Corn flour needs to be combined with other flours to make enough gluten for yeast bread.

Corn grits a product of corn. The whole grain is dried, soaked, deskinning, and degermed, producing hominy. It is then cracked to make grits.

Cornmeal a product of corn. The whole grain is ground to produce a meal, with or without the bran and germ. If the bran and germ are removed, enrichment nutrients may be added. A white, yellow, or blue color depends on the variety of corn. Bolted cornmeal is ground more finely than unbolted.

Couscous a product of durum wheat.

Cracked wheat a product of wheat that is similar to bulgur. The whole kernel of wheat is cracked into small pieces; it is not precooked.

Enriched all-purpose flour flour ground from the endosperm of the wheat kernel with iron and B-vitamins (thiamine, niacin, riboflavin, and folic acid) added. Calcium may be added but is not required.

Graham flour the same product as whole wheat flour except that it may be ground a little more coarsely.

Grain sorghum flour flour ground from grain sorghum. The flour is coarse and somewhat gritty. Grain sorghum does not contain any gluten-forming proteins.

Hominy a product of corn. Hominy is the whole kernel of corn that has been dried, soaked, deskinning, and degermed.

Malted barley a product of barley. During the malting process barley is germinated (sprouted) and dried under conditions that retain enzymatic activity. Enzymes convert part of the starch to sugar (maltose) and some of the insoluble proteins to soluble proteins. Sprouts are removed from the malted grain.

Millet flour flour made from millet. Millet does not contain any gluten-forming proteins. In Asia and Africa millet is widely used to make flat breads, griddlecakes, and other foods.

Oat bran the outer layer of the oat kernel. Oat bran is a good source of soluble dietary fiber.

Oat flour flour made from rolled oats. To make 1 cup of oat flour, place 1 1/4 cups rolled oats in blender and blend about 1 minute.

Pastry flour flour milled from soft wheat. The low protein content of pastry flour does not form enough gluten to make yeast bread. It also has less starch than cake and all-purpose flours.

Pearl barley a product of barley. Mechanical scouring or abrasive actions, called pearling, remove the indigestible hull and all or parts of the bran layer underneath the hull. Pearl barley is the remaining kernel following five or six pearlings. It is sized into small, round, white grains.

Rice flour flour made from rice. Rice flour does not contain gluten-forming proteins.

Rolled oats made from oats. The hull is removed from oats to make oat groats, which are then rolled to form flakes.

Rye flour flour ground from rye. Rye flours include white rye, medium rye, and dark rye. White rye is chemically bleached. Because rye lacks one main gluten-forming protein, rye flour is usually combined with wheat flour to make yeast bread.

Scotch barley a product of barley. Mechanical scouring or abrasive actions, called pearling, remove the indigestible hull and all or parts of the bran layer underneath the hull. Scotch barley is the remaining kernel following three pearlings, with all of the hull and most of the bran removed.

Self-rising flour all-purpose flour with salt and leavening added. One cup of self-rising flour contains 1 1/2 teaspoons baking powder and 1/2 teaspoon salt. It is not used to make yeast breads.

Semolina coarsely ground endosperm of durum wheat. High in protein, it is used to make pasta and couscous.

Soy flour flour ground from soybeans. Full-fat soy flour is made from whole, dehulled soybeans. Low-fat and defatted soy flour is ground from soybean meal. Soy flours are higher in protein than other flours but contain no gluten-forming proteins.

Soybean grits a product of soybeans. Grits are coarser than soy flour.

Stone-ground whole wheat flour wheat that is ground using millstones instead of mechanized rollers. The method of grinding does not change the nutrient content of the flour.

Triticale a hybrid grain developed by crossing wheat with rye.

Wheat berries the whole kernel of wheat with the hull removed.

Wheat bran the outer layer of the wheat kernel. Wheat bran contains B-vitamins, trace minerals, and insoluble dietary fiber.

Wheat germ the germ of the wheat kernel. Wheat germ contains small amounts of fat, vitamins, and minerals.

Wheat gluten a mixture of two proteins, gliadin and glutenin, which are needed to form gluten in bread.

Whole wheat flour flour ground from the whole wheat kernel (endosperm, bran, and germ). Whole wheat flour contains more trace minerals and dietary fiber than all-purpose flour or white bread flour.

Storybooks about Bread

Bread Bread Bread

by Ann Morris, photographs by Ken Heyman. New York: Scholastic, 1989.

From fat loaves for sale by the wall of the Old City of Jerusalem to sliced bread with peanut butter and jelly in the hands of a U.S. child, this photographic tour is a cultural feast. How it looks and how it's made may differ, but people all over the world eat bread.

Bread and Jam for Frances

by Russell Hoban, illustrated by Lillian Hoban. 1964. Reprint. New York: Scholastic, 1993.

Frances is a young badger who wants only bread and jam at every meal. When that is what she gets, Frances reconsiders her choice.

Bread Is for Eating

by David and Phillis Gershator, illustrated by Emma Shaw-Smith. New York: Henry Holt, 1995.

When a child leaves bread on his plate, his mother reminds him that "bread is for eating." In song and story she celebrates bread and the people who make it. The rhythmic, bilingual text comes to life with illustrations that depict a variety of peoples and breads.

Everybody Bakes Bread

by Norah Dooley, illustrated by Peter J. Thornton. New York: Carolrhoda Books, 1996.

It's a rainy Saturday and Carrie is bored. Her mom sends her out into the neighborhood in search of a three-handled rolling pin. She returns, not with the rolling pin, but filled with stories and tastes of bread being baked in the multiethnic neighborhood. Recipes are included: coconut bread, chapatis, corn bread, pocket bread, challah, pupusas, and Italian bread.

How Pizza Came to Queens

by Dayal Khalsa. New York: Random House, 1995.

Mrs. Pelligrino, visiting from Italy, enjoys everything about New York except the lack of pizza. Finally some thoughtful children help her make the first pizza in Queens, New York.

Jalapeño Bagels

by Natasha Wing, illustrated by Robert Casilla. 1988. Reprint. New York: Atheneum Books for Young Readers, 1996.

Pablo's parents own a bakery and he is helping to make the pan dulce (Mexican sweet bread), empanadas de calabaza (pumpkin turnovers), chango bars, bagels, and challah (Jewish braided bread). He is also trying to decide what to take to the school for International Day. By telling about traditional foods, this warm family story celebrates the blending of Mexican and Jewish cultures. Recipes for chango bars and jalapeño bagels are included.

Make Me a Peanut Butter Sandwich and a Glass of Milk

by Ken Robbins. New York: Scholastic, 1992.

Sandwiches are a favorite way to use bread. Where do bread, milk, and peanut butter really come from? Through photographs and simple text, this behind-the-scenes production tour ends in a kitchen with a peanut butter sandwich and a glass of milk!

Mr. Belinsky's Bagels

by Ellen Schwartz, illustrated by Stefan Czernecki. Charlesbridge Publishing, 1998.

Mr. Belinsky has a reputation for making the best bagels. But when a fancy new bakery opens, he decides to bake cakes and cookies. Business booms but Mr. Belinsky misses his bagel customers.

The Pizza Book

by Stephen Krensky, illustrated by R. W. Alley. New York: Scholastic, 1992.

How big was the largest pizza ever made? Who invented pizza? The answer to these and many other questions about pizza can be found in this story about a father and daughter who work together to make their own homemade pizza. A recipe for pizza is included.

The Sleeping Bread

by Stefan Czernecki and Timothy Rhodes, illustrated by Stefan Czernecki. 1992. Reprint. New York: Hyperion Books for Children, 1993.

Beto works from dawn to dusk filling a small Guatemalan village with the smell of fresh baked bread. He is a kindly baker who befriends a ragged beggar. Then one day, the bread fails to rise. The fable-like story reveals the foolishness of the villagers and imparts a timeless message about friendship.

Tony's Bread

by Tomie dePaola. New York: G. P. Putnam's Sons, 1989.

In this delightful folktale, the reader learns how the Italian bread *panettone* came to be. Tony the baker dreams that one day he'll become the most famous baker in all of northern Italy. His daughter Serafina has a dream of her own. Father and daughter seem far from their dreams until one day a stranger comes to town.

Walter the Baker

by Eric Carle. New York: Aladdin Paperbacks, 1998.

Creativity saves the day in this German folktale. Walter is the best baker in the village until the cat spills the milk and he substitutes water in the sweet dough. To rescue his baking reputation Walter invents the pretzel.

Resource Connections

Curricula

Rising to the Occasion

1997. *National 4-H Council*. 301-961-2934;

www.fourhcouncil.edu/4hstuff

Developed as part of the National 4-H Council's Workforce Preparation program with support from Fleischmann's yeast. A nationally juried and recommended 4-H publication. This 72-page guide integrates workplace competencies with the art and science of bread making for youth ages 5 to 18.

The Science of Yeast

RED STAR Yeast & Products. Milwaukee, Wisconsin.

A manual with information about yeast, including microscopic photos and experiments.

Children's Cookbooks

Knead It, Punch It, Bake It!

by Judith and Evan Jones. New York: Houghton Mifflin, 1998.

This collection of more than 40 bread recipes for both yeast and quick breads includes lots of tips for bread baking success. And it encourages families to take the time to bake bread together.

Loaves of Fun

by Elizabeth M. Harbison, illustrated by John Harbison. Chicago: Chicago Review Press, 1997.

Organized as a historical timeline from 73,000 BC to today's modern bakery, this book includes more than 30 recipes and activities—all about bread. It's a multicultural journey through time and around the globe.

Web Sites

www.bobsredmill.com

At Bob's Red Mill, a member of the Home Baking Association, find out how stone ground whole grain flours are produced. Click on Tour the Mill and take a virtual tour of this grain mill.

www.breadworld.com

Fleischmann's Yeast

This is the place to go for answers to yeast bread-baking questions. Click on Our History to learn about America's oldest yeast company; How Is Yeast Created to find out how yeast is produced commercially; and Tips, Terms, and Troubleshooting to e-mail your own questions and comments. The site includes many recipes as well as publications to order.

www.cyberspaceag.com

Kansas WIFE

This site was created for kids to learn about agriculture. Click on Cosmic Crops to visit Planet Wheat. There you will find fun facts, histories, and activities about wheat. Kansas Women Involved in Farm Economics (WIFE) works to educate about agriculture in the schools and local communities.

www.homebaking.org

Home Baking Association

This site features resources for educators, including an award application to draw national attention to successful home baking education programs. Yeast breads are just one part of a recipe collection including muffins, cakes, cookies, and other baked goods.

www.howstuffworks.com

Howstuffworks.com, Inc.

This site is filled with science information and activities. Click on Food in the directory to find How Bread Works. Read about bread as an example of early technology with experiments and step-by-step photo instructions for making bread.

www.kingarthurfLOUR.com

King Arthur Flour

This site contains history, bread baking tips, recipes, and "on line" baking classes. Click on Our Company to learn about the history of America's oldest flour company, now located in Norwich, Vermont.

www.kshs.org/wheat/wheat.htm

Kansas State Historical Society

Take a virtual tour of a special exhibit at the Kansas Museum of History. Stories and photos explore the Kansas wheat harvest, past and present. Pretend you're a Kansas farmer and play the Wheat Game.

www.kswheat.com

Kansas Wheat Commission

This site contains much information about wheat, including Grains of Truth fact sheets. Each printable fact sheet features a bread product (bagels, pita, sourdough, and more) including history, storage, nutrition, and recipes.

www.ndwheat.com

North Dakota Wheat Commission

At this site click on Food and Nutrition to find yeast bread recipes in the Wheat Cookbook or the Story of Wheat with activity sheets in Fun for Kids.

www.oznet.ksu.edu/wheatpage

Kansas State University, Research & Extension

In the Kids Corner, click on Adopt a Wheat Field to see how wheat plants change. Photos are from a field at the Kansas State University Agronomy Farm. Kansas ranks first in wheat production in the United States.

www.pbs.org/ktca/newtons

Newton's Apple

This is the popular PBS family science show. Click on Teachers Guides, then Bread to find Bread Chemistry (show #1205) featuring experiments and information about yeast breads.

www.RedStarYeast.com

Red Star Yeast

This site features favorite recipes, including gluten-free recipes. Click on FAQ for answers to frequently asked questions or e-mail your own question.

www.robinhood.ca

Robin Hood Flour

This site contains history, bread baking tips, and recipes. Click on Product Info to learn about the history of bread baking from prehistoric to modern times.

www.smartbread.com

Wheat Foods Council

This site was designed by the Wheat Foods Council to help media editors find information about bread: facts, nutrition news, food photography, recipes, statistics, and story ideas.

www.thebirkettmills.com

Located in Penn Yan, New York, The Birkett Mills is the buckwheat capital of America, in operation since 1797. Find out more buckwheat history, product information, and recipes at this site.

www.wheatfoods.org

Wheat Foods Council

This site covers topics including whole grains and fiber, grain food trends, healthy lifestyles, kids and teens, senior nutrition, and medical news. The Wheat Foods Council is a national organization formed to help increase awareness of dietary grains as an essential component of a healthy diet.

www.wheatmania.com

Kansas Wheathearts

This site was created for kids to learn about wheat. Click on "Kansas Wheat Farm Adventure!" and choose a wheat farm to visit. Click on Super Trivia to get fun facts about wheat. Click on Flour Power for recipes and information about Bake & Take Day. Click on Prairie Skyscrapers to see what happens inside a grain elevator. Click on All about Wheat to view photos and drawings of all phases of wheat production and then print activity sheets for nine different wheat products.

A Cook's Language and Tools

A successful cook needs to learn the language of cooking, especially when using written recipes. Specific words are used to describe ways of manipulating ingredients, and certain tools are used for the task. You don't need many of the kitchen gadgets that are available, but some basic tools will make many tasks easier.

Measuring

Many recipes give instructions for measuring the amount of each ingredient. Sometimes measurements are not vital, such as the amount of carrots, cucumber, and lettuce in a tossed salad. For other recipes, however, such as muffins, careful measuring is very important.

counting measure quantities of food such as six apples or one cucumber or use a timer to measure minutes or hours of cooking time.

volume of liquid ingredients choose the appropriate size spoon or cup. To use a liquid measuring cup, place it on a flat surface and then move your body so that the correct measuring line is at eye level. Keep your eye on the line while pouring the liquid.

volume of dry ingredients choose the appropriate size spoon or cup. Most dry ingredients should be spooned into the cup (without packing it down) and leveled off with a table knife. An exception is brown sugar, which is packed.

Tools to Use

liquid measuring cups a clear glass or plastic cup with a spout that is marked (1 cup, 1/2 cup, and so on) to measure liquid ingredients.

dry measuring cups a standardized set of cups (1 cup, 1/2 cup, 1/3 cup, 1/4 cup) used to measure dry ingredients.

measuring spoons a standardized set of spoons (1 tablespoon, 1 teaspoon, 1/2 teaspoon, 1/4 teaspoon, 1/8 teaspoon) used to measure small amounts of either dry or liquid ingredients.

timer a device for measuring cooking time.

Measuring Math

For dry and liquid ingredients

3 teaspoons = 1 tablespoon
4 tablespoons = 1/4 cup
5 tablespoons + 1 teaspoon = 1/3 cup
8 tablespoons = 1/2 cup
16 tablespoons = 1 cup

For liquids

2 cups = 1 pint
4 cups = 1 quart
2 quarts = 1/2 gallon
4 quarts = 1 gallon

For margarine or butter (stick form)

2 sticks = 1 cup
1 stick = 1/2 cup
1/2 stick = 1/4 cup

Common abbreviations

T = Tbsp = tablespoon
t = tsp = teaspoon
c = cup

Cutting

Many recipes call for prep work that involves cutting food into smaller pieces. Sometimes it's just a matter of what looks good. Other times a certain cutting technique will help to cook the food evenly or quickly.

chop to cut into irregularly shaped pieces.

dice to cut into cubes of the same size.

mince to chop very fine.

slice to cut into uniform slices.

grate to rub a food across the tiny punched holes of a grater.

shred to rub a food across the medium to large holes or slits of a grater.

peel to remove the skin from a fruit or vegetable.

core to remove the middle or core from a fruit.

Tools to Use

cutting board made from wood or plastic and provides a safe surface on which to cut foods.

knives available in several sizes and styles to suit the cutting job: paring knife, slicing knife, chef's knife, carving knife, or serrated bread knife.

pizza cutter a tool with a circular blade designed to roll across a flat surface such as pizza or tortillas.

peeler a tool with special blades designed to remove the peel from fruits and vegetables.

grater a tool with various-sized holes used for grating and shredding foods such as cheese and vegetables.

apple corer a tool designed for inserting into apples to remove the core.

can opener a tool designed to open cans.

Mixing

There are many ways to mix ingredients together. Different words are often used to describe very similar tasks.

beat to move the spoon rapidly back and forth to blend ingredients until the mixture is very smooth.

blend to put the ingredients in a blender, food processor, or electric mixer and process until the mixture is smooth.

combine to mix or toss so that ingredients are evenly distributed.

fold to move the spoon or rubber scraper with a gentle over-and-under motion.

mix to combine ingredients so they are all evenly distributed.

stir to mix together with a spoon, often while food cooks in a pan on the stove.

toss to mix ingredients gently.

whip to beat rapidly using a circular motion to incorporate air into the mixture.

Tools to Use

mixing bowls round-bottomed bowls in various sizes used for mixing foods.

wooden spoons spoons in various sizes for mixing and stirring ingredients.

wire whisk a tool designed for blending ingredients, particularly useful for rapidly incorporating air into a mixture.

potato masher a flat, perforated tool on a handle designed to mash foods such as potatoes.

pastry brush a soft brush used to spread food such as melted butter.

spatula a rubber spatula has a flexible rubber or plastic blade that is used to scrape bowls, pans, and pans and to fold ingredients together. A metal spatula has a long, narrow, flexible metal blade that is used to level off ingredients when measuring or to frost cakes. A wide spatula is used to flip pancakes or other foods.



Separating

Sometimes there is a need to separate components of food.

drain to separate liquid from solid.

separate eggs to separate the yolk from the white.

Tools to Use

colander a large perforated bowl used for rinsing or draining food.

strainer or sieve a mesh-wire tool used for separating liquids from solids.

hand juicer a tool for squeezing juice from foods such as lemons or oranges.

Heating Food

The appearance, texture, and flavor of food change when it is heated. Following are a few basic ways of cooking foods.

bake to cook in a conventional oven.

boil to heat a liquid to its boiling point or to cook a food in boiling liquid.

microwave to cook in a microwave oven.

simmer to heat a liquid to just below its boiling point or to cook in a simmering liquid.

steam to cook in the steam of boiling water.

toast to brown lightly in a toaster or oven.

Tools to Use

baking pan a square, round, or rectangular pan used for cooking foods in the oven.

baking sheet a large rectangular pan with narrow or no sides.

pizza pan a large round pan with narrow sides.

baking dish a dish that can safely be used in a conventional oven.

microwave dish a dish that can safely be used in a microwave oven.

saucepan or cooking pot a pan with a tight-fitting lid used for general stovetop cooking.

steamer basket a perforated metal basket that fits into a saucepan for steaming vegetables or other foods.

skillet or frying pan a low-sided pan used for general stovetop cooking.

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Notes

Notes

Cooking Up Fun!

Helping youth acquire independent cooking skills will promote healthy food choices and good nutrition. *Yeast Breads* is a collection of recipes and food activities to use with youth ages 9 to 12 in informal, educational settings. Recipes, science experiments, and food activities engage youth in active, investigative learning.

This teaching guide includes

- 20 recipes for breads ranging from breadsticks to pitas
- a sample cooking series with six sessions: Explore Cultural History, Explore Ways of Making Dough, Explore Science, Explore Grains, Explore Nutrition, and Explore Creative Fun

an annotated listing of storybooks about bread

background information about the Food Guide Pyramid, nutrients, food safety, baking, and cooking tools and techniques



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