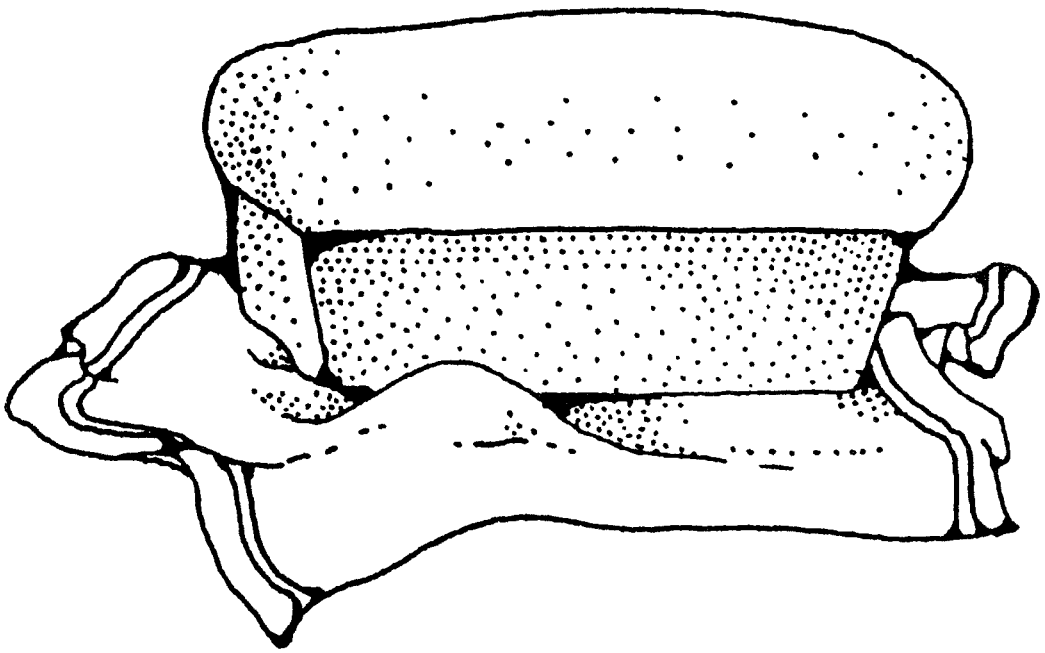
EC113

Baking 3



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North Dakota State University, Fargo, North Dakota
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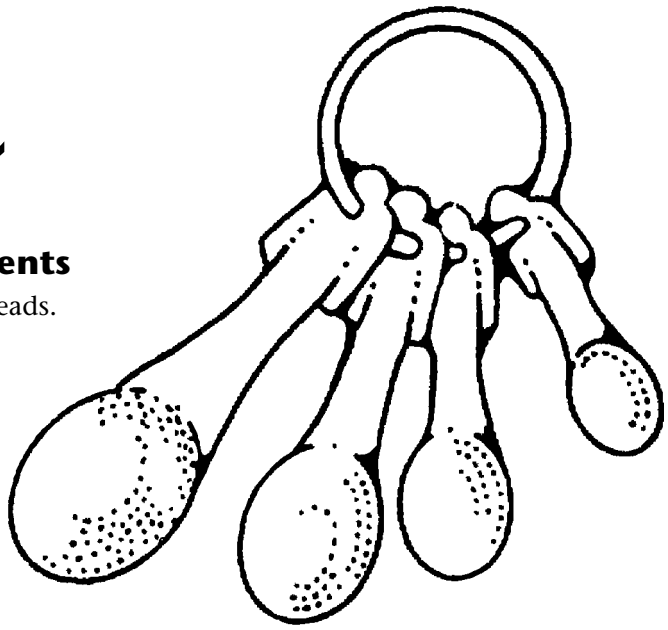


A Message to 4-H Leaders and Parents

Baking 3 is an interesting introduction to yeast breads. It is very different from *Baking 1 and 2*, teaching different techniques. The project is organized so one subject can be covered at each meeting.

A Message to 4-H Members

As your knowledge and skill have developed, you are ready to learn new techniques. Yeast bread baking develops your creativity.

These are some of the things you will learn in this project

- the importance of bread in the diet
- about ingredients and how they affect the finished product
- how to make white yeast bread with and without a bread machine
- how to identify the characteristics of high-quality breads

These are some of the things to do

- look into job opportunities in food science and service
- give a demonstration to teach others about breads
- judge breads
- keep records of foods prepared

These are exhibit ideas

- white yeast rolls
- whole-wheat yeast bread
- white yeast bread from a bread machine
- whole-wheat bread from a bread machine

Eating Well

"MyPyramid" has been rebuilt and it's now a plate! Here's what the colors stand for:

orange - grains
green - vegetables
red - fruits
blue - dairy foods
purple - protein foods

The U.S. Department of Agriculture (USDA) wanted an easier way to remind people to eat healthfully. MyPlate shows the five food groups using a familiar picture: a place setting with a plate, cup and fork.

MyPlate Speaks

Let's look at some of the other messages this new symbol is trying to send:

Balancing Calories

- Enjoy your food, but eat less.
- Avoid oversized portions.

Foods to Increase

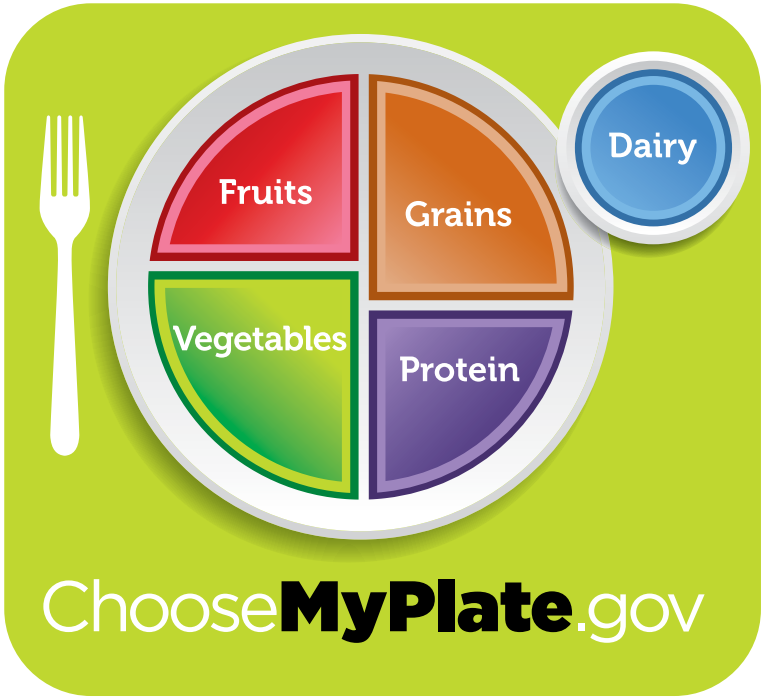
- Make half your plate fruits and vegetables.
- Make at least half your grains whole grains.
- Switch to fat-free or low-fat (1%) milk.

Foods to Reduce

- Compare sodium in foods such as soup, bread and frozen meals. Choose foods with lower numbers.
- Drink water instead of sugary drinks.

Make it personal.

Through the USDA's MyPlate website (www.choosemyplate.gov), you can get personalized recommendations about the mix of foods you need to eat and how much you should be eating.



How Much Do I Need to Eat?

Everyone wants to know how much he or she should eat to stay healthy. That's a tricky question, though. It depends on your age, whether you're a girl or boy, and how active you are. Kids who are more active burn more calories, so they need more calories. But we can give you some estimates for how much you need of each food group.

Grains

Grains are measured in ounce equivalents. What are they? Ounce equivalents are just another way of showing a serving size.

Here are ounce equivalents for common grain foods. An ounce equivalent equals:

1 piece of bread
½ cup of cooked cereal, such as oatmeal
½ cup of rice or pasta
1 cup of cold cereal

- 4- to 8-year-olds need 4 to 5 ounce equivalents each day.
- 9- to 13-year-old girls need 5 ounce equivalents each day.
- 9- to 13-year-old boys need 6 ounce equivalents each day.

And one last thing about grains: Make at least half your grain food choices whole grains, such as 100 percent wheat bread, brown rice and oatmeal.

Vegetables

Of course, you need your vegetables, especially those dark green and orange ones. But how much is enough? Vegetable servings are measured in cups.

- 4- to 8-year-olds need 1½ cups of veggies each day.
- 9- to 13-year-old girls need 2 cups of veggies each day.
- 9- to 13-year-old boys need 2½ cups of veggies each day.

Fruits

Sweet, juicy fruit definitely is part of a healthy diet. Here's how much you need:

- 4- to 8-year-olds need 1 cup to 1½ cups of fruit each day.
- 9- to 13-year-old girls need 1½ cups of fruit each day.
- 9- to 13-year-old boys need 1½ cups of fruit each day.

Dairy Foods

Dairy foods are rich in calcium to build strong bones to last a lifetime.

- 4- to 8-year-olds need 1 to 2 cups of milk (or other calcium-rich food) each day.
- 9- to 13-year-old girls need 3 cups of milk (or other calcium-rich foods) each day.
- 9- to 13-year-old boys need 3 cups of milk (or other calcium-rich foods) each day.

If you want something other than milk, you can substitute yogurt, cheese or calcium-fortified orange juice — just to name a few.

Protein Foods

These foods contain iron and lots of other important nutrients. Like grains, these foods are measured in ounce equivalents.

An ounce equivalent of this group would be:

1 ounce of meat, poultry or fish
¼ cup cooked dry beans
1 egg
1 tablespoon of peanut butter
a small handful of nuts or seeds

- 4- to 8-year-olds need 3 to 4 ounce equivalents each day.
- 9- to 13-year-old girls need 5 ounce equivalents each day.
- 9- to 13-year-old boys need 5 ounce equivalents each day.

Whoa! That's a lot to swallow. The good news is that your mom, dad and the other grownups in your life will help you eat what you need to stay healthy. Here's more good news: You don't have to become a perfect eater overnight.

Adapted with permission from
http://kidshealth.org/kid/stay_healthy/food/pyramid.html

10 tips
Nutrition Education Series

enjoy your food, but eat less

10 tips to enjoying your meal

You can enjoy your meals while making small adjustments to the amounts of food on your plate. Healthy meals start with more fruits, vegetables, grains, protein foods, and dairy. Drink and eat less sodium, saturated fat, and added sugars.

1 get to know the foods you eat

Use the **SuperTracker** to find out what kinds of foods and how much to eat and to get tips and support for making better food choices.

SuperTracker

2 take your time

Be mindful to eat slowly, enjoy the taste and textures, and pay attention to how you feel. Use hunger and fullness cues to recognize when to eat and when you've had enough.

3 use a smaller plate

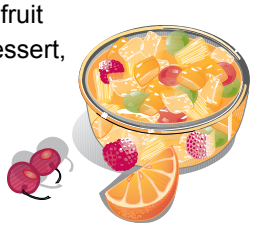
Use a smaller plate at meals to help with portion control. That way you can finish your entire plate and feel satisfied without overeating.

4 if you eat out, choose healthier options

Check and compare nutrition information about the foods you are eating. Preparing food at home makes it easier to control what is in your meals.

5 satisfy your sweet tooth in a healthy way

Indulge in a naturally sweet dessert dish—fruit! Serve a fresh fruit cocktail or a fruit parfait made with yogurt. For a hot dessert, bake apples and top with cinnamon.



6 choose to eat some foods more or less often

Choose more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. Cut back on foods high in solid fats, added sugars, and salt.

7 find out what you need

Get your personalized plan by using the **SuperTracker** to identify your food group targets. Compare the foods you eat to the foods you need to eat.

8 sip smarter

Drink water or other calorie-free beverages, 100% juice, or fat-free milk when you are thirsty. Soda and other sugar-sweetened beverages contain added sugar and are high in calories.

9 compare foods

Check out the **Food-A-Pedia** to look up and compare nutrition information for more than 8,000 foods.

10 make treats "treats," not everyday foods

Treats are great once in a while. Just don't make treat foods an everyday choice. Limit sweet treats to special occasions.

USDA
United States Department of Agriculture

10 tips
Nutrition Education Series

choosing whole-grain foods

10 tips for purchasing and storing whole-grain foods

Whole grains are important sources of nutrients such as zinc, magnesium, B vitamins, and fiber. There are many choices available to make half your grains whole grains. But whole-grain foods should be handled with care. Over time and if not properly stored, oils in whole grains can cause spoilage. Consider these tips to select whole-grain products and keep them fresh and safe to eat.

1 search the label

Whole grains can be an easy choice when preparing meals. Choose whole-grain breads, breakfast cereals, and pastas. Look at the Nutrition Facts labels and ingredients lists to find choices lower in sodium, saturated (solid) fat, and added sugars.

2 look for the word "whole" at the beginning of the ingredients list

Some whole-grain ingredients include whole oats, whole-wheat flour, whole-grain corn, whole-grain brown rice, and whole rye. Foods that say "multi-grain," "100% wheat," "high fiber," or are brown in color may not be a whole-grain product.

3 kids can choose whole grains

Your kids can choose whole grains at school. Encourage healthier choices at home by adding whole grains into their favorite recipes, meals, and snacks.

4 find the fiber on label

If the product provides at least 3 grams of fiber per serving, it is a good source of fiber. If it contains 5 or more grams of fiber per serving, it is an excellent source of fiber.

5 is gluten in whole grains?

People who can't eat wheat gluten can eat whole grains if they choose carefully. There are many whole-grain products, such as buckwheat, certified gluten-free oats or oatmeal, popcorn, brown rice, wild rice, and quinoa that fit gluten-free diet needs.

6 check for freshness

Buy whole-grain products that are tightly packaged and well sealed. Grains should always look and smell fresh. Also, check the expiration date and storage guidelines on the package.

7 keep a lid on it

When storing whole grains from bulk bins, use containers with tight-fitting lids and keep in a cool, dry location. A sealed container is important for maintaining freshness and reducing bug infestations.

8 buy what you need

Purchase smaller quantities of whole-grain products to reduce spoilage. Most grains in sealed packaging can be kept in the freezer.

9 wrap it up

Whole-grain bread is best stored at room temperature in its original packaging, tightly closed with a quick-lock or twist tie. The refrigerator will cause bread to lose moisture quickly and become stale. Properly wrapped bread will store well in the freezer.

10 what's the shelf life?

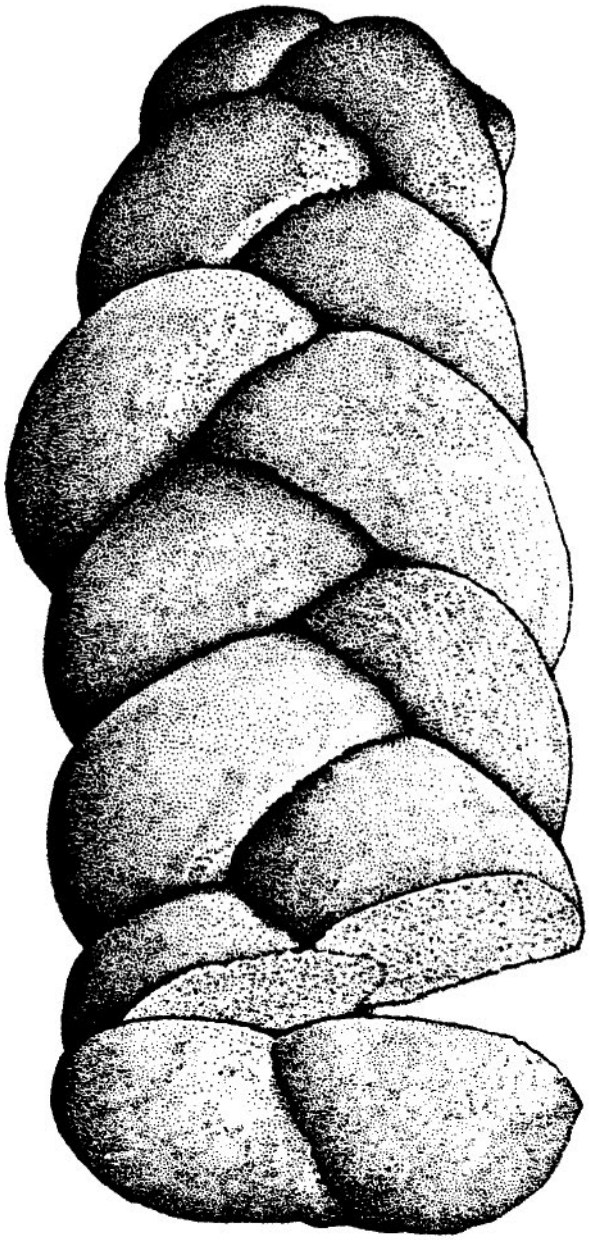
Since the oil in various whole-grain flours differs, the shelf life varies too. Most whole-grain flours keep well in the refrigerator for 2 to 3 months and in the freezer for 6 to 8 months. Cooked brown rice can be refrigerated 3 to 5 days and can be frozen up to 6 months.

Center for Nutrition Policy and Promotion
USDA is an equal opportunity provider and employer.

Go to www.ChooseMyPlate.gov for more information.

DG TipSheet No. 22
Revised January 2016

The Goodness of Bread



The fragrance of baking bread announces that a creative artist is at work in the kitchen. From the first plain white loaf to the elaborately shaped, flavored and decorated sweet rolls, bread making can be a satisfying experience. After you learn the basic principles of making yeast bread, you can vary its shape and flavor. Use different kinds of flour, liquid and sweetening. Be daring with the use of onions and herbs. Your family will enjoy these adventures in food.

As your skill increases, try a basic sweet yeast dough. Sweet rolls and coffeecakes are welcome as treats for your family and gifts for your friends. Recipes for traditional breads from other countries will bring an international flavor to your kitchen.

Why eat bread?

Bread and cereals make up one of the basic food groups that the human body needs every day. The other groups are milk and dairy products, meats, and vegetables and fruits. The bread and cereal group includes breads, cooked cereals, ready-to-eat cereals, cornmeal, crackers, flour, grits, macaroni and spaghetti, noodles, rice, rolled oats and quick breads.

Breads and cereals contribute to good health, sparkling appearance and pep. Their carbohydrates provide the energy for activity.

Bread also provides the body with protein, Iron and B vitamins — thiamine, riboflavin and niacin. Protein builds and repairs body tissues, helps form antibodies to fight infection and supplies food energy. Iron makes up part of the red blood cells, which carry oxygen to all parts of the body. Thiamine is essential for good appetite and digestion, a healthy nervous system and changing food substances into energy. Riboflavin helps the body use oxygen, helps provide good vision and is important for a smooth skin. Niacin is necessary to release energy from food materials. Enriched breads and cereals are processed products to which thiamine, riboflavin, niacin and iron have been added.

Basic ingredients for yeast bread

Flour is the main ingredient in bread. We use wheat flour for making bread because it contains gluten. When moistened flour is stirred or kneaded, gluten fibers are formed. These give adhesiveness to dough and shape to baked products. Before dough is baked, gluten fibers are elastic, and they stretch as the leavening agent forms gas. Thus, the mixture is said to rise. Hard-wheat flours contain large amounts of gluten. Soft-wheat flour, used for cake, contains less gluten, and therefore makes a finer, more tender framework.

Yeast is a living plant so small that you cannot see it with the naked eye. However, with proper food and temperature, it grows rapidly, and you easily can see it grow.

Yeast works on the sugar to produce carbon dioxide. This gas bubbles through the dough and causes it to rise, producing a porous or open appearance. In the process of baking, the dough becomes set, the yeast is killed, and the carbon dioxide is driven off as a gas.

You can use either compressed or dry yeast. The compressed form comes in foil-wrapped cakes, and you usually find it at the dairy counter of the grocery store. This yeast is a creamy color, feels cool and moist and breaks cleanly and easily.

Dry yeast usually comes in flat foil packages, plastic bags or jars. The yeast is in the form of tiny pellets. It will keep longer than compressed yeast. Always check the date on a yeast package to be sure it is fresh and active. Yeast makes the dough rise and gives the characteristic flavor and fragrance in baking bread. It also works on the gluten of the flour, making it soft, elastic and more easily digested.

Liquid: Milk, water or a combination of these is used as the liquid. Milk adds food value and gives good flavor. You can use fresh, evaporated or dry milk. Use water for crusty-type breads.

Sugar is food for yeast, adds flavor and food value, and helps brown the crusts. You may use white or brown sugar, honey, corn syrup or molasses.

Fat helps make baked goods tender and soft, gives a soft, silky crumb, and improves the keeping quality of breads. Margarine, salad or cooking oils, hydrogenated shortening, lard or butter may be used.

Salt brings out the flavor in bread. It controls the action of the yeast and whitens the crumb.

Eggs add food value, color and rich flavor to the breads in which they are used. They help make the crumb finer and the crust tender. Eggs most frequently are used in sweet rolls and coffeecake dough, but make rich rolls and sandwich breads, too.

Other ingredients vary with the bread. Spices, seeds and herbs can be used to give special flavors. Festive breads often call for nuts, raisins or other dried and candied fruits.

Let's Make Bread

Fast French Bread

2 2/3 cups barely warm water
2 packages dry yeast
(Or 5 teaspoons dry yeast from a jar)
4 teaspoons sugar
6 to 7 cups flour
4 teaspoons salt

Putting it All Together

The big thing to remember about baking bread is that there is no one right way to do it; a little bit of deviation from the recipe won't matter much. Stay reasonably close to the basic recipe and you'll end up with a great loaf — in this case, two great loaves.

Start by pouring 3 cups of *barely warm* (not above 115 degrees) water into the mixing bowl. Be careful about the water temperature because here is one of the few places in the whole bread-making process that you can make a serious mistake. Cold water will work. *Barely warm* water will work faster. But hot water will kill the yeast. So avoid using hot water.

Into the water dump two packets (or 5 teaspoons) of dried yeast.

On top of the yeast (which probably will be floating on top of the water) sprinkle the 4 teaspoons of sugar. Give it a stir or two with the wooden spoon.

At this point, many recipes recommend you wait and let the yeast proof — that is, that you wait and see if the yeast starts bubbling. Doing this proves that the yeast is good. But the yeast almost always is good, and rare is the day that a loaf doesn't rise. So you really might as well plunge on to the next step and forget about proving anything.

Now for the flour. Dump 3 or 4 cups of bread flour into the water/yeast/sugar mixture.

On top of the flour, add the 4 teaspoons of salt.

Stir this mixture until it is reasonably well mixed. (This might take some muscle. Stick with it!)

Keep adding flour until the dough seems dry enough that you can tip it out of the bowl and start kneading without becoming entangled and frustrated. When the dough looks about ready, give it a try. Tip it onto a clean, flat surface that has a little flour sprinkled on it. Then rub some flour on your hands (to help you keep from getting stuck to your own dough).

Now you are ready to start kneading.

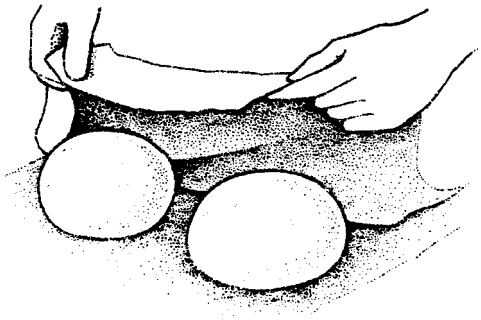
Kneading

What you're aiming for is a smooth ball of dough that bounces back at you a bit when you press or punch it.

To get it to that point, you'll need to squeeze, squash, push and womp the dough for 10 minutes or so. Maybe eight minutes. Maybe 12. It all depends on the dough, the day and how hard you knead. Don't worry. When the dough seems somewhat bouncy, springy and hard to squeeze, you can quit.

The trick to kneading is to avoid getting stuck. If your hands begin to stick to the dough, throw on a little more flour. If they begin to stick again, throw on some more flour. Don't fret too much about getting precisely the prescribed amount of flour into the mixture. If you keep the dough manageable, you'll end up with just exactly the right amount of flour in the dough ball — whether or not that amount is the 7 cups mentioned in this recipe. The 7-cups instruction is only a guide.

What you want is a dough ball that looks right and jumps at you just the way it ought to. When you have that, you're ready to let it rise.



Letting it Rise

If you let your dough rise in the same bowl you used for mixing, you'll have one less thing to wash afterward. To do this, first rub loose particles of dough from the mixing bowl and throw them out. Then smear margarine or oil over the inside of the bowl. (Of course, you also can use a clean container, if you like. Whatever works.) The main thing is to be sure that the container is a little more than twice as big as the dough ball, and well-oiled.

Place the dough ball into the oiled container, and then turn it over once so the ball has a bit of oil all over it. Wipe your hands. Then cover the top of the bowl with a piece of plastic wrap, a towel, a lid or whatever is handy. The good thing about plastic wrap is that it makes a very airtight seal — especially if you wet the lip of the bowl before putting it on. (Also, the rising dough won't stick to the plastic wrap if it should happen to touch it.)

Now set the bowl in a warm place to let the dough rise until it's double in size — double or even a little more, if you like.

The question is — what warm place? One answer: the oven. But if you do this, be very careful. Many a bread baker has set dough in the oven to rise, forgot to turn the oven off, and ended up with a hard block of dough good for nothing but a door stop.

If you use the oven, do this:

Keeping your bread bowl on the counter, far away from the oven, set the oven to "warm" — or the lowest setting — and let it warm. Then shut the oven off. Then take the bowl of dough and set it into the warm oven. ***Be certain nobody switches the oven on while the dough is in there.***

Be warned that this is a risky method, but it works very well if you don't goof up. Make an absolute rule never to put the rising bread in the oven while the oven actually is on. You may *think* you're going to switch if off in a minute, but that's what a lot of sadder-but-wiser bread bakers thought, too.

When the dough has doubled in size, it's risen enough. This may take half an hour, or it may take an hour. Much depends on how warm the spot is where you set the bowl. Recipes almost always say the dough should "double in size," which sounds like a pretty exact statement. But really it isn't. Guessing what is "double in size" is not easy. Just let it rise so it looks twice as big, or even bigger. Then call it quits. No problem.

One way to test whether the dough is ready is to press two fingers lightly and quickly ½ inch into it. If the dent stays, the dough is about double and ready for the next step.

While the dough is rising, you'll have plenty of time to clean up the kitchen and all the bowls and utensils you've used so far. Dough that dries turns nearly as hard as cement, so you'll save yourself a lot of trouble if you clean up at this point – or at least put everything in water to soak.

How do I know the dough is doubled?

Look at it. Or else lightly and quickly press two finger tips ½ inch deep into the top of your dough. If the dent stays, the dough has risen enough and is ready. If the dent pops up, let the dough rise a bit more.

What's the best technique for kneading?

Usually kneading is done on a flat board or counter top — preferably one that doesn't wiggle. Spread a little flour on the surface. Rub a little flour on your hands. Drop the dough onto the working place. The goal is to squeeze and press the dough evenly for eight to 12 minutes. Whatever technique works for you is just fine, but here's one way you might try.

Form the dough into a fat circle and fold the far edge toward you.

Then press the dough away with a rolling motion until it's back in a fat circle again.

Turn the circle a quarter turn and do the same thing over again. And over again. And over again.

Whenever the dough starts grabbing at you (or at the board), sprinkle more flour onto the dough, onto your hands or onto the board.

Prepare the Baking Pan and the Oven

Rub oil on your cookie sheet, flat pan or French bread pan. If you used the oven to warm the dough, open the oven door to let the oven cool a bit while you get the dough ready. (This recipe, unlike most recipes, requires you to pop the dough into a cool oven — meaning, really, an oven that is at about room temperature.)

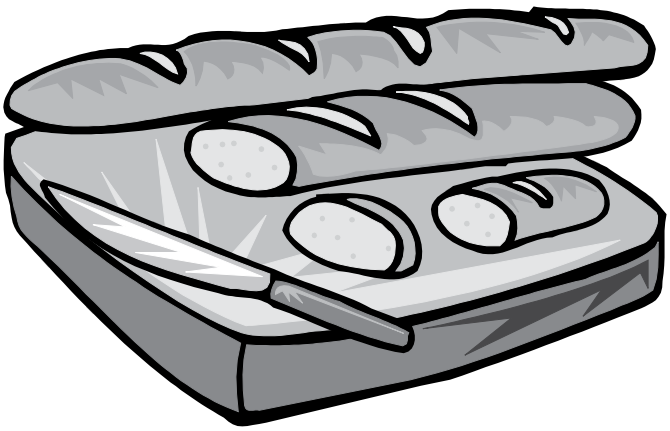
Bust the Dough and Shape it for Baking

Peel the cover off the bowl of rising dough and punch the bread dough in the middle so it collapses. Wrap your hands around it and squeeze it in the middle and pull it into two more-or-less equal hunks. Hold one of the hunks by one end and wiggle it, letting it droop into a long shape. Lay that long piece of dough on one side of the baking sheet and pat it a bit so it looks like a submarine sandwich.

Do the same with the other hunk.

How long should the loaves be? That's up to you. It isn't a critical matter. Nor is it necessary to make them perfectly regular. The bread loaf even may look more interesting if it's a bit *ir*regular.

With a sharp knife or kitchen shears, make three or four angled slashes in the top of each loaf, each about ¼ inch deep. This is the traditional thing to do with a French loaf, and it does help keep the dough from splitting as it rises and bakes. But if you don't have a knife or shears, forget it. The loaf will taste just as good with or without slash marks.



Bake it

Now you're ready. Set the pan with your formed dough into the cold oven. Place it on the middle of a rack more or less in the middle of the oven. Close the oven door, set the temperature to 400 degrees and start the oven.

Click.

Immediately look at your watch — and also set your kitchen timer (if you have one) for 35 minutes. You can peek before the time is up, if you want, but after 35 minutes be sure to open the oven door and take a good look at your loaves. By then they probably are done.

What you're looking for is a golden brown color. If you think you want them a bit browner than they appear to be after 35 minutes, leave them in a little longer. They'll definitely be done by 40 minutes or so — but whether you take them out at 33 or 35 or 38 or 41 minutes probably won't make a big difference.

Using potholders or gloves to protect your hands, remove the baking pan and loaves from the oven. Then put the loaves on a wire rack to cool. The good thing about a wire rack is that it lets air circulate all round the loaves, and this keeps them from getting wet as they cool. But if you don't have a wire rack, just set your loaves anywhere at all. (Lay them upside down, maybe, so less bread is touching the surface where you've set them.)

Then, as soon as you can do it without burning your fingers, use a bread knife to cut yourself a slice — or just tear off a hunk, which is how it's often done in France.

In most recipes, the bread is put into its baking pan and allowed to rise there the second time. Then it is placed in a preheated oven (not a cold one) to bake. This Fast French Bread recipe is unusual in that the second rising takes place in the oven while the bread is beginning to bake. The advantage of this method is that it is faster than most.

As soon as your bread is baked, remove it from the pan or baking sheet so it won't become soggy. Then put it on a wire rack to cool.

A bread knife is a big help in cutting bread (it has a serrated edge).

Varying the Recipe

The great thing about making bread is that it tastes wonderful however you do it, and you can do it nearly any way you want. One excellent way to begin experimenting with creating new loaves is to take an old recipe and vary it.

Want to try some variations on this recipe? Here are a few possibilities:

- **Sprinkle cornmeal onto the baking pan** (right over the margarine or oil, whichever you prefer). This will help prevent sticking and also will give the bread a faintly different taste where the tongue touches the baked cornmeal.
- **Brush water onto the surface** of the two loaves before you put them into the oven for baking. This will change the color and texture of the crust, probably making it a bit browner and a bit crustier. A kitchen brush works well for this, but you also can use your fingers to spread the water gently.
- **Brush egg white on the surface** of the two loaves before you put them into the oven. This will put a glaze on your loaves, which many people admire. To do this, you'll need to separate the yolk from the white. One method for separating yolk and white: Crack the egg in half over a bowl, then gently pull apart the two halves of the shell, letting the white of the egg leak out of the shell (and down into the bowl) while keeping the yolk safely saved in one of the shell halves. Let as much white slide out as possible without allowing the yolk to plop into the bowl. Then put the egg yolk into a container for safekeeping and throw away the shells. Add a tablespoon or so of water to the egg white, if you like, and whip it up a bit before spreading the egg white/water mixture onto the surface of the loaves. A kitchen brush is perfect for this purpose, but fingers will work, too. (Remember, carefully wash your hands after working with raw eggs.)
- **Add a bit of whole-wheat flour to the dough** as you mix it. Try a cup or two. This will make your dough a bit stickier to work with, and probably will keep your loaves from rising quite as high – but it will give your bread a new taste.

If you like these loaves, you may want to invest in a French bread pan. Usually such pans are made for two loaves. When you use a French bread pan, your loaves will look rounded, like the typical French baguette. Also, they probably will rise higher.

When baking bread, use whole-grain flour to add fiber to your diet. Also, always use enriched flour because this contains added B vitamins and iron. For good health, be certain the flour label says *whole grain or enriched*.

Let's Bake Rolls

Basic Yeast Roll Dough

(Makes 20 to 24 plain rolls or one loaf of bread)

1/4 cup sugar
1 teaspoon salt
2 tablespoons shortening
1/2 cup milk
1/4 cup warm, not hot, water (lukewarm for compressed yeast)
1 package active dry yeast (or 1 cake compressed yeast)
1 egg
2½ cups sifted enriched flour (about)

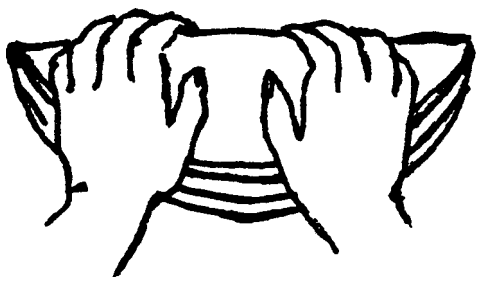
1. Scald milk over low heat or in a double boiler. Scalding is heating the milk until tiny bubbles form around the edge of the saucepan.
2. While the milk is heating, measure sugar, salt and fat into a 2-quart mixing bowl.
3. Pour hot milk into the bowl. Stir to melt fat and dissolve sugar and salt. Cool to lukewarm. Test the temperature of the cooled milk by putting a drop of the milk on the inside of your wrist. If it feels just a little warm, but almost cool, it has cooled enough.
4. While the milk mixture is cooling, put the 1/4 cup warm (not hot) water into a glass measuring cup. Sprinkle the dry yeast or crumble the compressed yeast into the water. Stir until smooth.
5. When milk has cooled enough, add 1 cup flour. Stir until smooth.
6. Add softened yeast and unbeaten egg. Beat well.
7. Add 1½ cups more flour and mix well. If the dough still looks shiny, add a little more flour, perhaps 1/4 cup, until the dough looks dull. Be careful not to add too much. A soft, almost sticky dough makes the best roll.
8. Turn out on lightly floured board and knead until smooth and satiny. (See kneading directions.)
9. Place in greased bowl. Cover and let rise in a warm place until double in size (about 1½ hours).
10. When light, punch down. Let rest 10 minutes.
11. Shape into rolls. (See shaping directions.)
12. Let rise in a warm place until doubled in size (about one hour).
13. Bake shaped individual rolls in a hot oven (400 F) about 15 minutes, or until they are nicely browned.

Variation:

For whole-wheat rolls, use 1½ cups enriched flour and 1 to 1¼ cups whole-wheat flour. Stir the whole-wheat flour before measuring. Add the 1½ cups enriched flour first. For sweetening, you may use 1/3 cup honey or molasses and 2 tablespoons sugar.

Kneading the dough

Lighly flour a 12- to 14-inch circle on your bread board. Place dough on this surface. With floured hands, flatten the ball of dough. Pick up the edge of dough farthest away from you. Fold it over to the edge closest to you. Curve your fingers over the folded part of dough and begin pushing dough with the heel of your hand. Use a rocking, rolling motion. Press down a little as you push. Do this rhythmically about three times.



Turn dough one quarter turn around on the board. Repeat kneading action. Keep folding, kneading and turning dough until it is smooth and satiny. This might take about 10 minutes the first time. With practice, you can knead dough in five to eight minutes.

When the dough has been kneaded enough, you can put your hand lightly on the dough and count to 30 without having it stick. When kneaded, the dough is a smooth, white ball. It feels springy and elastic and doesn't stick to your hands or to the board.

If dough gets sticky while you are kneading it, spread a little extra flour on the board.

Handle the dough lightly to prevent pushing your hands into the ball and adding too much flour.

Form the dough into a ball. Let it stand while you grease a bowl lightly. Put dough into the bowl, smooth top down. Then turn dough over, smooth top up. This turning greases the dough lightly and keeps it soft so it can stretch and rise. Cover the bowl with a plastic cover, aluminum foil, lid or plate.

Rising of fermenting dough

Set the bowl of dough in a warm spot to rise, away from drafts. An easy way to help dough rise is to set the bowl on a cake rack *over* hot water. When the weather is very warm, you may have to set the bowl in a large pan of cool (not cold) water to maintain the correct temperature.

After a little more than an hour, test the dough for lightness. If it looks about twice as large as it did when you put it in the bowl, make the fingertip test. Press the tip of one finger gently into the top of the dough. If the dent stays, the dough is light enough. If the dent doesn't stay, let the dough rise 15 minutes longer and test again.

After the dough has doubled in size, punch it down. To do this, plunge your fist into the center of the dough and fold the edges toward the center. This punching down lets some of the gas out of the dough. It breaks up the large gas pockets into smaller ones, and it brings fresh air and food to the yeast plants.

Allow the dough to rest 10 minutes after punching it down before you shape it into rolls. This "resting" makes the dough easier to handle and shape.

Shaping rolls

Lucky Clovers: Pinch off pieces of dough the size of an egg. Shape each into a ball and place in a greased muffin pan.

With scissors, cut each ball in half, then into quarters, cutting through almost to the bottom of the rolls. Set the rolls in a warm place to rise and cover them with a clean towel. Let rise until double in bulk. (About 45 minutes to an hour.) Bake in a hot oven (400 F) about 15 minutes.

Clover Leaf Rolls: Divide the ball of dough into thirds. Starting with both hands at the center of a piece of dough, roll it back and forth until it is about 6 inches long and evenly shaped.

With a sharp knife or scissors, cut each roll into six equal pieces. Then cut each piece into three small pieces. Shape each small piece into a little ball. If the dough sticks to your fingers, rub a little butter or margarine on them. Dip each ball in melted butter or margarine and place three of them into a greased 2¾-inch muffin cup.

Set the rolls in a warm place to rise and cover them with a clean towel. Let rise until doubled in bulk (about 45 minutes to an hour). Bake in a hot oven (400 F) about 15 minutes.

Lover's Knots: With your hands, roll about a third of the dough into a 6-inch long roll. Cut this roll into eight equal parts. Then roll each small piece under your hands until it is about 6 inches long. Rub roll with melted butter or margarine and tie it in a loose knot. Don't pull the knot tight. Grease a cookie sheet. Put the knots on it, about 2 inches apart.

Crescent Rolls: Divide dough in three sections. Roll each section out into a circle 1/4 inch thick. Butter surface and cut like a pizza. Roll from wide edge toward point and place on greased cookie sheets. Set the rolls in a warm place to rise and cover them with a clean towel. Let rise until doubled in bulk. Bake in a hot oven (400 F) about 15 minutes.

Refrigerator Rolls

(Makes about 2½ dozen rolls)

2 packages active dry yeast or
2 cakes compressed yeast
1½ cups milk
2 teaspoons salt
5½ cups sifted enriched flour
½ cup warm, not hot, water
(lukewarm for compressed yeast)
½ cup sugar
¼ cup fat
1 egg

1. Soften yeast in water.
2. Scald milk and add sugar, salt and fat. Cool to lukewarm.
3. Add 2 cups of flour. Mix thoroughly.
4. Add egg and softened yeast. Beat well.
5. Add enough more flour to make a soft dough.
6. Turn out on a lightly floured board and knead until smooth and satiny.
7. Place in a lightly greased bowl. Grease surface of dough.
8. Cover and put in the refrigerator, or let rise in a warm place until doubled in size (about 1½ hours). Punch down. Shape the desired amount of dough into rolls and let rise until doubled (about 45 minutes). Form remaining dough into a ball. Grease surface lightly.
   Cover and put into refrigerator. If dough rises in refrigerator, punch it down. Dough will keep three or four days if the refrigerator is 34 to 40 F.
9. As needed, remove dough from the refrigerator and punch it down. Mold at once into any desired shape. Or, if you wish, let dough stand in warm room before molding.
10. Place shaped rolls in greased pans and let rise until doubled (about an hour).
11. Bake rolls in hot oven (425 F) 15 to 20 minutes.

How do your rolls rate?

Rolls should be attractively shaped, plump and all the same size. The crust should be tender, crisp and evenly golden brown, with sides somewhat lighter than the top. The inside color varies with ingredients, but it should be uniform without light or dark streaks. A good roll has a soft and tender texture. It breaks or tears easily but does not crumble. Its flavor should be sweet and nutlike.

How do yours rate?

Causes of Problem Rolls

Uneven shape
Improper shaping
Underlight when put in oven

Heavy
Low-grade flour
Underlight or overlight when put in oven

Sour Taste
Poor yeast or flour
Rising too long
Too slow baking
Incomplete baking
Rising too fast

Thick Crust
Too slow baking

Tough Crust
Underlight when put in oven
Too much salt
Low-grade flour
Too much handling of light dough

Pale Crust
Too slow baking
Too much salt
Dough dried out during rising
Too little sugar

Dark Crumb
Kind of flour or liquid used
Overlight or underlight when put in oven
Oven temperature not adjusted

Streaks
Poorly mixed
Addition of flour at molding stage
Drying of dough on top before shaping

Crumbly
Soft wheat flour
Overlight when put in oven
Not enough rising

Coarse-grained
Poor yeast
Low-grade flour
Overlight when put in oven
Wrong temperature

Yeast Bread Recipes

The varieties of bread are almost endless — whole-wheat bread, sprouted-wheat bread, white bread, rye bread, limp bread, pumpernickel, black bread, Portuguese sweet bread, barley bread, Sally Lunn and raisin bread. Hundreds upon hundreds of recipes are available in cookbooks. Friends and relatives are another good source of recipes. The labels of yeast jars and bread bags sometimes offer recipes.

Baking just the *major varieties* of bread could take you months. Baking all the minor variations would take a lifetime. After you've used a number of recipes, you'll get the knack of guessing which breads might suit your taste, and which probably won't. You'll also probably want to start varying basic recipes you like to make them better.

The following recipes will help get you started.

Friends and relatives are another good source of recipes.

Quick White Bread

2 loaves (from start to finish in two hours)
4½ to 5 cups bread flour
2 packages active dry yeast
1/3 cup nonfat dry milk
2 teaspoons salt
2 tablespoons sugar
2 cups water (120 to 130 F)
2 tablespoons oil

Combine 2 cups flour, yeast, nonfat dry milk, salt and sugar. Stir together. Add water and stir well. Add oil and beat with mixer three minutes or with wooden spoon about five minutes. Stir in remaining flour, enough to make a soft dough. Knead on lightly floured surface about 10 to 12 minutes. Cover dough with bowl; let rest 20 minutes. Shape into two loaves, place in two greased 8 ½-inch by 4 ½-inch by 2 ½-inch loaf pans and brush lightly with oil. Let rise in warm place until doubled, about 30 to 40 minutes. Bake in 400-degree oven for 30 to 40 minutes. Remove immediately from pans. Brush with oil and cool on wire rack.

Shaping the Loaf

To punch down dough, plunge your fist into the center of it. Then pull all the edges of the dough over into the center cavity you've made with your fist. Turn the dough over.

If yours if a two-loaf recipe, divide the dough in half and then on a floured surface, using a rolling pin, roll each half into a rectangle. Roll firmly and gently to get rid of gas bubbles.

Now roll the rectangle of dough just as you'd roll a towel, but starting at one end and rolling toward the other. Seal the creases by pressing them with the heel of your hand. Seal the ends the same way so you can't see the rolled layers of dough. Now you have a cylinder of dough. Lay this cylinder into the greased bread pan, seam side down.

Whole-wheat Bread

2 loaves

1 package active dry yeast
1/3 cup dry milk
2 teaspoons salt
2 to 2½ cups bread flour*
2 cups water (115 F)
¼ cup molasses
2 tablespoons softened shortening
¼ cup cracked wheat

Stir together undissolved yeast, dry milk, salt and 2 cups bread flour. Add water, molasses and shortening. Beat vigorously until dough sheets off wooden spoon. Add whole-wheat flour and cracked wheat to make dough manageable. (The softer the dough, the moister the bread.)

Knead dough about 10 minutes. Place in lightly greased bowl, turning to grease all sides. Cover with plastic wrap and towel.

Let rise in a warm room (80 F) or over bowl of hot water until doubled. Punch down. Let rest 10 to 15 minutes, shape, place in greased pans and let rise until dent remains when finger is pressed in corner of dough.

Bake at 375 F for 35 to 40 minutes. Remove from pans immediately and brush with oil. Let cool on rack out of draft and then place in plastic bag and seal with closure.

Allowing dough to rise several times will give the bread a finer texture.

The order in which you add ingredients can be important; usually, pouring liquids in first, then the flour, is best. This is because the amount of flour you need will vary with the type of flour, quality of flour and temperature of the mixture.

* You may substitute all-purpose enriched white flour, but because it contains less protein, you may need more of it. If you substitute all-purpose flour, add about ½ tablespoon for every cup of flour called for in the recipe. For example, Quick White Bread calls for 4 ½ to 5 cups of bread flour. If you use all-purpose flour, add 6 to 8 tablespoons (approximately ½ cup). In short, where you would have used 4½ to 5 cups of bread flour, you will use 5 to 5½ cups of all-purpose enriched white flour. Also, if you make this substitution, the kneading time will be shorter – about eight minutes instead of 10.

Bread Flour is made mainly from hard wheat. The high protein and gluten content in hard wheat makes bread that rises high and has a fine texture. Gluten is the substance that gives structure and elasticity to batters and doughs.

All-purpose flour usually is made from a combination of soft and hard wheat. You can use it to make bread and nearly anything else that requires flour. With all-purpose flour, you may not be able to create quite as impressive a loaf as with bread flour, but certainly all-purpose flour will make a fine loaf of bread.

Whole-wheat flour has a coarse texture. Unlike bread flour or all-purpose flour, it is made from the entire kernel of wheat. It contains more fiber, more trace minerals and more fat that white flours. Whole-wheat bread won't rise as high as white bread, but it's likely to be denser and many people prefer that. A combination of about half enriched and half whole-wheat flour will make a loaf that many people find acceptable.

Stone-ground flour is milled the old-fashioned way, between stones (that is, if it's real stone-ground flour). Because it's usually coarser and heavier than other flour, it may require more yeast.

Cake flour, pastry flour, self-rising flour and instantized flour are great for their various special purposes, but not great for baking yeast breads.

Dakota Bread*

1 loaf (2 pounds)

1 package active dry yeast
½ cup warm water (105 to 115 F)
2 tablespoons sunflower oil
1 egg
½ cup cottage cheese
¼ cup honey
1 teaspoon salt
2 to 2½ cups bread flour
¼ cup wheat germ
¼ cup rye flour
¼ cup oatmeal
2 tablespoons cornmeal

Sprinkle yeast in warm water; stir to dissolve.

In a large bowl, mix sunflower oil, egg, cottage cheese, honey and salt. Add dissolved yeast and 2 cups bread flour, beating until flour is moistened. Gradually stir in whole-wheat flour, wheat germ, rye flour and oats, plus enough bread flour to make soft dough.

On a floured surface, knead dough about 10 minutes or until dough is smooth and elastic. Place dough in greased bowl; cover loosely with oiled plastic wrap.

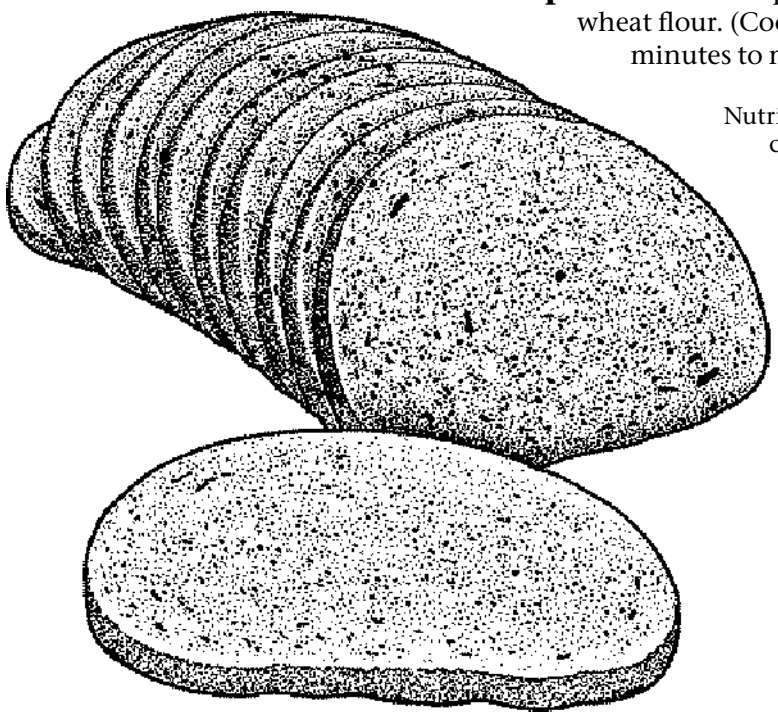
Let rise in warm place until doubled in size, about 30 minutes.

Punch down dough. Shape into one round loaf. Place in greased glass pie pan sprinkled with cornmeal. Cover with oiled plastic wrap and let rise until doubled in size, about 1 hour.

Brush with egg white and sprinkle with wheat germ, sunflower kernels or oat meal.

Bake at 375 degrees for 30 to 40 minutes. If too dark, cover loosely with foil the last 10 to 15 minutes of baking. Remove from pie pan and cool on a wire rack.

Optional: Add 1 cup of cooked barley with the whole-wheat flour. (Cook ½ cup "quick" pearled barley for 10 minutes to make 1 cup of cooked barley.)



Nutritional information: Each 1 ½-ounce slice contains 127 calories, 4 grams protein, 22 grams carbohydrates, 2.6 grams fat, 1 gram dietary fiber, 17 milligrams cholesterol, 1.2 milligrams iron, 171 milligrams sodium.

*A centennial project of the North and South Dakota Wheat Commission

Cool-rise One-bowl White Bread

2 loaves

6 to 7 cups unsifted flour
2 tablespoons sugar
½ cup (1 stick) margarine or butter, softened
1 tablespoon salt
2 packages active dry yeast
2 cups very hot (110 to 115 F) tap water
Cooking oil to brush on dough

In a large bowl, thoroughly mix 2 cups of the flour and all of the sugar, salt and undissolved active dry yeast. Add softened margarine. Gradually add very hot tap water to dry ingredients and beat two minutes at medium speed of electric mixer, scraping the bowl occasionally. Add 1 cup flour, or enough flour to make a thick batter. Beat at high speed two minutes, scraping the bowl occasionally. Stir in enough additional flour to make a soft dough. Turn the dough out onto a lightly floured board and knead until smooth and elastic (about eight to 10 minutes). Cover with plastic wrap, then a towel; let rest 20 minutes at room temperature.

Punch down dough, then divide in half on a lightly floured board and shape halves into loaves. Place in two greased 8½- by 4½- by 2½-inch loaf pans. Brush with cooking oil. Cover pans loosely with plastic wrap. Refrigerate two to 24 hours.

When ready to bake, remove from refrigerator. Uncover dough carefully. Let stand, uncovered, for 10 minutes at room temperature. Puncture any gas bubbles with a greased toothpick or metal skewer. Bake in hot oven (400 F) about 30 to 40 minutes, or until done. Remove from pans and cool on wire racks.

Original author: Mae Martha Johnson, former Extension home economist

Breadsticks

1 package active dry yeast
1/3 cup warm (110 F) water
2 ¼ cups bread flour, divided
1 tablespoon sugar
½ teaspoon salt
2 tablespoons oil
1/3 cup cold water
1 egg white
Sesame or poppy seeds

Dissolve yeast in warm water. In food processor bowl, with blade in place, combine 2 cups flour, sugar and salt. Process 10 seconds. Remove lid; add yeast and oil. With processor running, pour cold water through feed tube. Add additional flour if necessary so dough forms a ball. Process 30 seconds.

Divide dough into 16 equal portions; roll each into pencil-like rope 8 inches long. Place them 1 inch apart on greased baking sheet. Brush with oil. Cover; let rise 20 minutes. Brush with egg white; sprinkle with seeds. Bake at 350 F for 20 to 25 minutes.

Nutritional information: Each bread stick contains 76 calories, 1.9 grams protein, 12.8 grams carbohydrates, 1.8 grams fat, .6 gram dietary fiber, 68 milligrams sodium and no cholesterol.

Pans differ in the amount of heat, as well as the amount of dough, they hold. Shiny pans hold less heat than dull pans, and dull pans less than glass. Most recipes are written for the middle ground, the dull-colored metal pan. So if you use a shiny pan, you may need to bake your bread a bit longer. (Just watch until the color looks right.) If you use a glass pan, set the oven temperature 25 degrees less than what the recipe lists.

Teddy Bear Bread

Loaves in the shape of two large bears, four baby bears, two lions or one owl

7 cups all-purpose flour
3 tablespoons sugar
2 teaspoons salt
1 package RapidRise yeast
1½ cups water
½ cup milk
3 tablespoons margarine
Dark seedless raisins
1 egg
1 tablespoon cold water

Set aside 1 cup of flour. In large bowl, mix remaining flour, sugar, salt and yeast. Heat water, milk and margarine until hot to touch (125 to 139 F); stir into the dry mixture. Mix in only enough reserved flour to make a soft dough. Turn out onto a floured surface; knead until smooth and elastic, about eight to 10 minutes. Cover and let rest for 10 minutes.

At this point, decide whether you wish to make two big bears, four baby bears, two lions or one owl.

For Two Bears

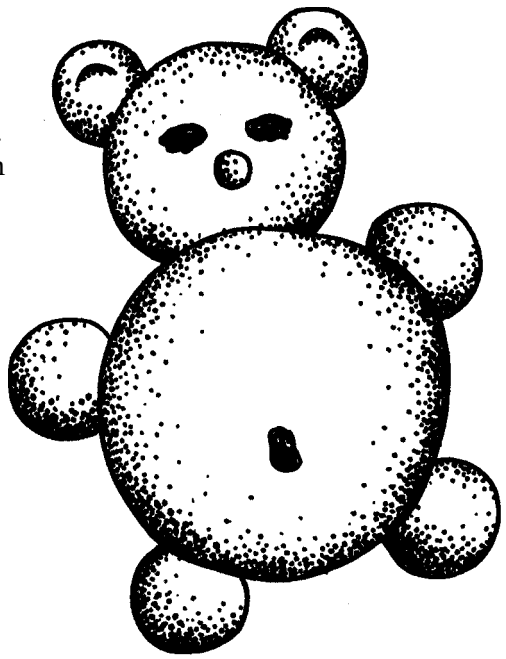
Divide dough into four equal pieces. Form two pieces into round balls. Place each in the center of a greased baking sheet. Flatten slightly. Divide each of the remaining pieces in half. Form two halves into smooth round balls. Place above larger pieces on baking sheets to form heads; flatten slightly. From each remaining piece, break off a small ball about the size of a cherry to be used as a nose. Divide remaining dough into 12 equal pieces. Shape into balls and attach to bears to form paws and ears. Pinch adjoining seams to seal. Cover, let rise in a warm, draft-free place until doubled in size, about 50 to 60 minutes.

With fingertips, make an indentation in each ear. Place raisins for eyes and the belly button on each bear. Beat the egg and cold water together; brush on bears. Bake at 375 F for 25 to 30 minutes or until done. Remove from baking sheets and cook on wire racks.

For Four Baby Bears

Divide dough in half. Take one of the halves and follow directions above for making two bears. (Everything will be smaller, of course.) Then do the same with the other half of the dough to make two more baby bears. Let rise till double, and then decorate as directed above.

Bake at 375 F for 20 minutes or until done.



For Two Lions

Divide dough in half; set half aside. You'll use one half to make each lion.

Divide one of the halves into two equal pieces; shape one piece into a smooth round ball, set it on a large greased baking sheet and flatten it into ½-inch-thick circle. This is the head. With a sharp knife, cut a circle in the dough 2 inches from the edge; make "V" cuts in the border to resemble a mane.

Divide the remaining part of the dough for this lion in half; shape half of it into a smooth, round ball. Place it below the head and flatten slightly for the body. Divide remaining piece of dough into five equal pieces. Shape four pieces into circles and place below the body for feet and on the head over the mane for ears. Roll the remaining piece into a 10-inch long rope; place next to body for tail, coiling the end.

To make the second lion, take the other half of the dough and do the same.

Cover your lions and let them rise in a warm, draft-free place until doubled in size, about 50 minutes.

Beat egg and cold water together; brush on lions. Make an indentation in the ears. Place raisins for eyes, nose and belly button; make a ¼-inch-deep cut for a mouth. Bake at 375 F for 20 to 25 minutes or until done. Remove from sheets and cool on wire rack.

For One Owl

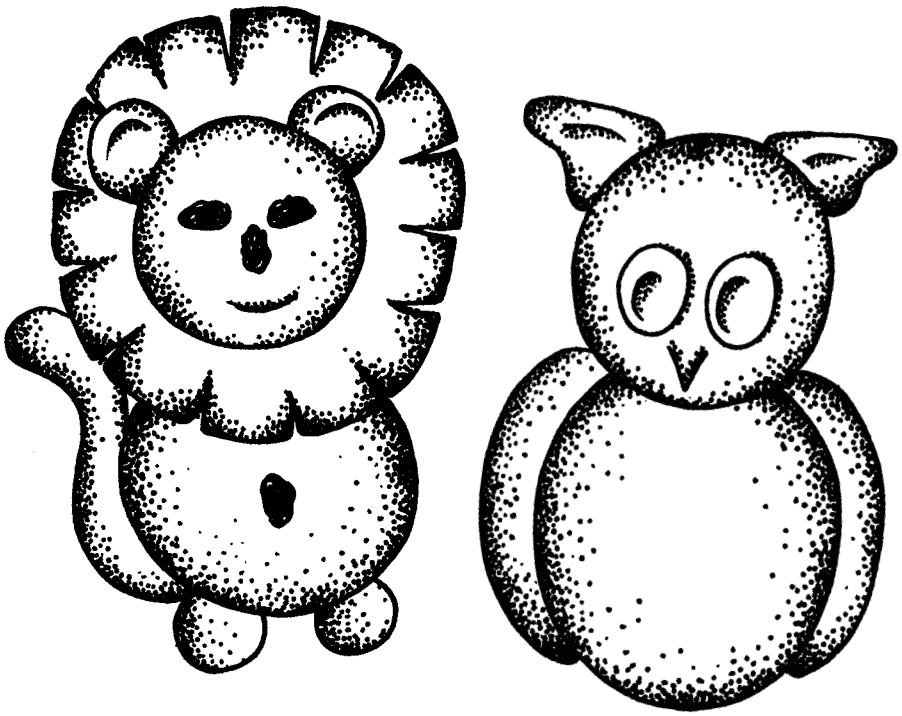
Divide dough in half and set half aside. Divide remaining half into two equal pieces. Shape one piece into a smooth round ball; place it on a greased baking sheet for the head. Divide the remaining dough piece in half; shape one piece into a smooth oval. Place below the head for the body.

Divide the remaining dough into four equal pieces. Shape two into balls and place above head for ears; pinch dough to make pointed ears. Shape the remaining two pieces into 5-inch ropes; place next to body to form wings. With a sharp knife, cut two ½-inch circles on the head to outline large eyes. Make a "V" cut for mouth. Cover; let rise in warm, draft-free pace for 50 minutes.

Make indentations in ears. Recut eyes and mouth if necessary. Beat the egg and cold water together; brush on owl. Bake at 375 F for 20 minutes or until done. Remove from sheets and cool on wire racks.

If the recipe calls for a pre-heated oven, be certain the oven is hot and at the right temperature. Then put the bread in, leaving space between the pans and sides of the oven so that air can circulate.

Place the pan of bread in the center of the oven. When baking more than one loaf, leave 2 inches between each pan.



A Troubleshooters Guide to Imperfect Loaves

To get the perfect loaf, you may need to try the basic recipe, judge the result critically, make some adjustments and try again. Here are some things that can happen to your bread that you may not like — and some ways you can try to improve your next loaf.

The flaw in your loaf	How you can try to fix it
Didn't rise enough ... or at all	*If it didn't rise at all*, make sure your yeast is not too old (look at the expiration date on the package). Also, make sure that you actually remembered to add the yeast. And be sure that you didn't use scalding water in the yeast mixture. Hot water kills yeast — which is why recipes call for liquid ingredients that are just barely warm to the finger. *If it didn't rise enough*, you may have used too much salt (retards yeast growth). Or maybe you haven't waited long enough to let it rise. Or maybe the rising loaf was set into cold a spot.
Loaf is the wrong shape	If it doubled in size but still is too short, you may have used the wrong size pan. If it's lopsided because it drooped over the pan, then perhaps it rose too long or the pan is too short. If one side of the loaf is bigger than the other, perhaps you didn't lay the dough evenly in the pan.
Texture is too fine	Knead it less.
Texture too coarse	Knead it more. Shorten rising time.
Air space under top crust (called "flying" top crust), cracks in loaf	Dough may have crusted before it was baked. Be certain loaf is covered during rising so no air can reach it. Using plastic wrap to cover it may be the solution.
Bread is damp or slightly gooey in middle	Increase baking time.

Evaluating Traditional Yeast Bread

Everyone wants the perfect loaf, but *perfect* means different things to different people. Some like thick crust, some thin crust. Some like a coarse texture on the tongue, while others prefer a smooth texture more like cake. Some like heavy bread, some like fluffy bread. To help you evaluate your bread, here are some characteristics that many people find attractive in bread and rolls.

Product:

Date:

	Excellent	Good	Needs Improvement
Appearance			
Evenly rounded top			
Uniform brown color			
Symmetrical and well-shaped			
Uniform in size			
Smooth crust			
Good volume			
Creamy interior color			
Free of light or dark streaks			
Free of flour on the outside crust			
Shredded border			
Any special ingredients such as fruits and nuts are evenly distributed and uniform in size			
Egg washes and glazes are evenly distributed and neatly applied			
Texture			
Free from large air bubbles			
Moderately fine and even-grained			
Soft and not crumbly			
Crumb			
Moist and silky			
Tender to the touch			
Elastic			
Flavor			
Tastes well-baked			
Nutlike or wheaty taste			
No excessive yeast taste			
Fresh-tasting ingredients			
Comments			

Storing Bread to Keep it Fresh

Storing Bread for Daily Eating

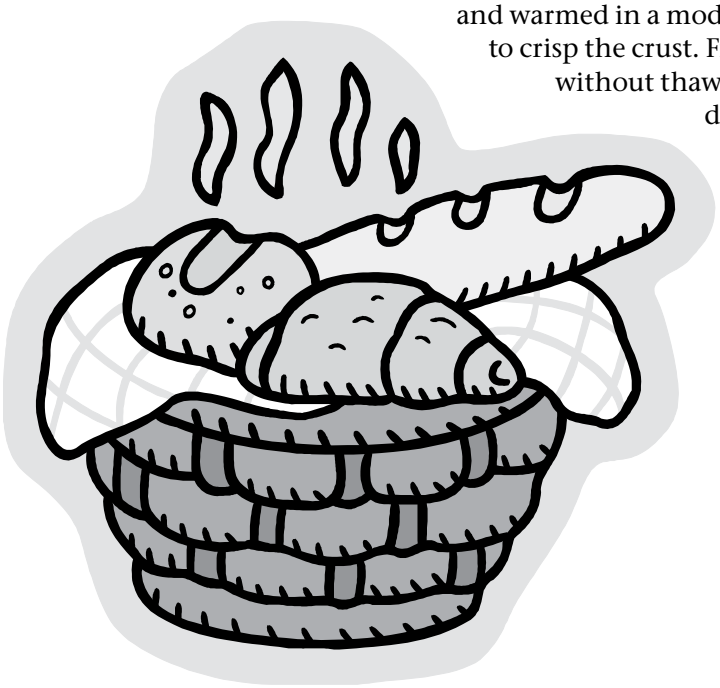
Unless you eat it on the spot, you'll want to store your fresh-baked bread to keep it fresh. After the bread is cool, wrap it tightly in plastic wrap or foil, or place it in an airtight plastic bag. Seal it well. If you plan to eat it fairly soon, store it at room temperature. Storing bread in the refrigerator will prevent it from molding in hot, humid weather, but will cause the bread to dry out more quickly. If you don't intend to eat the bread for several days, your best bet is to freeze it.

Freezing Bread

After bread or rolls are cooled, wrap them in heavy foil, freezer paper, heavy-duty plastic wrap or airtight plastic freezer bags. Be sure to squeeze all air from the package by pressing the wrap close to the bread. Seal it tightly. Label and date all packages. Do not frost or decorate breads before freezing them. Thawing and using the frozen bread within three months is best.

Thawing Frozen Bread

Thaw bread in its original wrapping and unwrap it just before serving. Place it on a rack to allow air to get around it. Most breads will thaw at room temperature in two to three hours, depending on room temperature and the size of the loaf. Foil-wrapped bread may be thawed and warmed in a moderate oven (375 F) 20 to 40 minutes to crisp the crust. Frozen bread slices may be toasted without thawing them first. Thaw sweetbreads before decorating them.



You also can thaw bread in the microwave. Take it out of its wrapping and follow the instructions provided with your microwave.

Science in Breadmaking

Experiment – How does temperature affect the action of yeast?

Materials Needed

1 package of dry yeast
3 glass cups of the same size and shape
Set of measuring spoons
Water
¾ teaspoon of sugar

Procedure

Place 1 teaspoon of yeast in each cup. To the first cup, add 1/2 cup of cold water from the tap; to the second cup, add 1/2 cup of water that feels warm to your wrist: to the third cup, add 1/2 cup of water at simmering temperature. (Water is simmering when bubbles form on the bottom of the pan and rise to the surface during heating.) To each cup add 1/4 teaspoon of sugar to nourish the yeast. Let cups stand uncovered at room temperature for 30 minutes.

Observation

Observe the gas formation in the cups. Rank cups according to yeast activity.

Questions

What temperature gave the greatest yeast activity?

What gas was formed?

How could you find out whether using hot or cold water permanently injures yeast?

How can you use this information in baking yeast breads?

Experiment – What is the amount and quality of gluten formed from different flours?

Materials needed

2 small mixing bowls
1 cup of cake flour
1 cup of all-purpose flour
1 liquid measuring cup

Procedure

Place each flour sample in a separate bowl. Add just enough water to each bowl to make a stiff dough. Knead each ball until smooth and satiny. Allow it to stand under a stream of running water or in a bowl of water and knead until all the starch is removed. The residue is gluten. Compare the balls made from the two kinds of flour as to volume, weight and consistency. Bake the balls in a hot oven (375 to 400 F) until they brown lightly. Compare the sizes after baking.

Questions

Which flour gives the largest gluten balls?

What part does gluten play in making yeast rolls?

How can you use this information in making yeast rolls?

Experiment –
How does yeast fermentation affect the size, texture and tenderness of bread?

Procedure

Mix one recipe of basic yeast roll dough (see page 16). After kneading (step No. 8), divide dough into three portions — A, B and C. Shape A directly into plain rolls. Put on baking sheet. Bake as recipe directs. With B, follow the rest of the recipe exactly. Let dough double in size, punch down, rest, shape, rise again and bake. Let dough C rise until tripled in size. Punch down, rest, shape, rise again until more than doubled, bake.

Observation

Compare A, B and C rolls. What is the difference in size, appearance, color of crumb, texture and tenderness.

Roll Differences Due to Yeast Action

Characteristics	A	B	C
Size			
Crumb			
Color			
Texture			
Tenderness			

Questions

How does yeast fermentation affect rolls?

Are baked unrisen rolls acceptable as to tenderness and taste?

Did letting dough rise to more than double in size (get overlight) give you a better roll?

Alternative Methods of Making Bread

Perhaps the most common method of making bread is to knead the dough by hand, allow it to rise once, put it in pans to rise a second time, then pop it into a hot oven to bake. Yet that's not the only way to make bread, as you already have seen. The fast French loaf *rose just once*, and then was put into a cold oven immediately. (It rose a second time as the oven heated.)

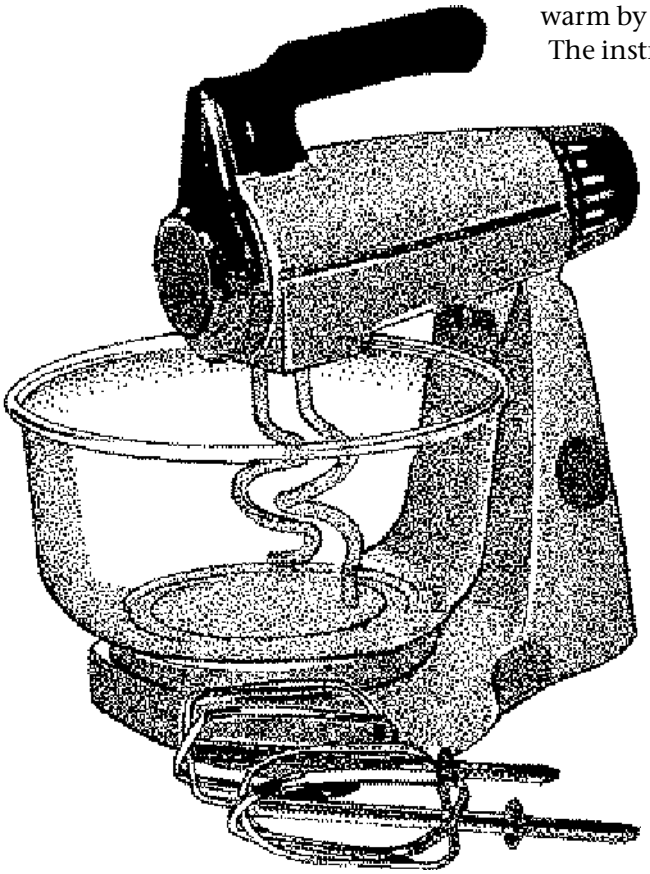
You have lots of other methods you can try, too. Some involve using different equipment. Some involve combining the yeast and flour in different ways.

To begin, here are a few pieces of equipment that will let you experiment with new ways to make bread.

Food Processor

You can use a food processor to do the mixing and kneading. This saves time in preparing the bread and cleaning up afterward. A food processor can be especially useful for kneading heavy, sticky bread (such as pumpernickel) that can wear you out.

Before attempting to mix bread in your food processor, read the food processor's instruction manual. You'll probably find that many steps in mixing and kneading bread with a food processor are slightly different than those used in mixing it by hand. For instance, because the processor (unlike your hands) creates heat as it works the bread, the instructions often will call for using cold water in making the dough. This is to prevent the dough from getting too warm by the end of the kneading procedure. The instructions may ask you to dissolve the yeast in warm water and add the yeast/water mixture to the flour mixture first, and then add the cooler water. When all the liquid is in, the dough in the bowl will form into a ball as the processor works. After the ball is formed, 60 seconds of additional processing will be enough. Your bread is kneaded.



Microwave Oven

You can use a microwave for warming bread to help it rise, baking bread and thawing bread you've frozen.

To keep bread warm for rising or thawing, follow instructions in the microwave oven manual. If no directions are available, use these general guidelines:

- Place the bread dough in a greased glass bowl, or put the shaped loaf or frozen loaf into a greased glass pan. Grease the loaf top lightly and cover the loaf with waxed paper. Set the bowl or pan in a 1-quart glass baking dish to which 2 cups of hot water have been added. Microwave on a medium to low setting (50 percent to 30 percent power) for one minute and let stand 15 minutes. Repeat this process as necessary.

  OR

  Prepare the dough in its bowl or pan and place it in water as described above. Microwave for 15 minutes on the *warm* setting, then let the loaf stand 10 minutes. Repeat the process until the loaf is slightly higher than the pan. Rotate the dish of water between each microwave period. If the surface of the unshaped dough appears to be drying, carefully turn the dough over in the bowl.
- Before baking bread in a microwave oven, check the oven's manual or cookbook instructions. Ovens differ in wattage, and this affect baking times.
- Also, do not let the dough rise to more than double the original size if it is to be baked in the microwave oven since microwaved breads rise more than normal during cooking. (They may collapse if they have risen too much in the first place.)
- Microwaving doesn't make a great crust. In a microwave oven, the surface of the loaf will neither brown nor harden. This means you may be best off microwaving bread made of dark dough, or microwaving white bread you intend to toast.
- Reheating cold or old bread will give its fading taste a boost. If you do this in the microwave, place the bread on a cloth, paper napkin or paper plate to absorb moisture.

Added Ingredients

Although wheat products serve as the basis and structure of baked wheat products, you can use other ingredients as well. Here are a few:

- **Eggs** provide flavor, golden color, moistness. They bind ingredients together and add to the structure.
- **Leavening agents** (yeast, baking powder or soda) make the structure rise, add lightness and tenderness.
- **Liquid** helps ingredients act with each other, provides moistness and binds ingredients together.
- **Sugar** improves tenderness, adds flavor and induces browning.
- **Shortening or oil** provides tenderness, moistness, freshness and richness.
- **Salt** helps control yeast action and enhances flavor. The use of salt in many baked products is optional.

Purposes of Ingredients

- **Yeast** is leavening, produces carbon dioxide.
- **Salt** regulates yeast growth and gives flavor.
- **Sugar** is yeast food, increases tenderness and browning.
- **Liquid** dissolves yeast and sugar and develops gluten. Water doughs make a more crusty product and greater volume. However, milk doughs produce a finer texture and better flavor and hasten browning, as well as making a complete protein.
- **Shortening** tenderizes.

Because salt slows yeast growth, it influences the rate at which the dough will rise.

Microwave Casserole Bread

Note: *This is a batter bread, which means it requires no kneading, only stirring. Because the batter is thinner than kneaded dough, the texture of the bread will be a little rougher and more open than that of a kneaded loaf.*

1½ cups cold water
1/3 cup yellow cornmeal
1 teaspoon salt
1/3 cup molasses
2 tablespoons margarine or butter
¼ cup water (barely warmer than your finger)
1 package active dry yeast
3¼ to 3½ cups bread flour or unsifted all-purpose flour

Yield: 1 loaf

In a glass container, combine the water, cornmeal and salt. Cook on high setting in a microwave oven, uncovered, and stir occasionally. Do this until the mixture boils and begins to thicken. Add molasses and butter or margarine; cool to lukewarm. Dissolve yeast in warm water. Stir into lukewarm cornmeal mixture. Mix in flour until well-combined. Pour the mixture into a well-greased, glass 2-quart casserole or loaf pan and even it out. Rub the top with oil or softened butter or margarine. Cover the casserole (allowing space for dough to rise)* and refrigerate overnight.

On the following day, remove the risen batter from the refrigerator and cook it, uncovered, for 10 to 12 minutes on medium high setting, or until no doughy spots remain. Cool five minutes in casserole; turn out of pan and cool completely.

*To use a conventional oven instead of a microwave, follow the directions to this point and then, instead of putting the dough in the refrigerator, put it in a warm place (80 F) and let it rise until it reaches the top of the casserole (about 45 minutes). Bake it in a conventional oven at 350 F for 40 to 45 minutes.

Nutritional information using margarine: If the loaf is cut into 24 slices, each slice contains 87 calories, 2 grams protein, 17 grams carbohydrates, .7 gram dietary fiber, 1 gram fat, no cholesterol, 1 milligram iron, 102 milligrams sodium.

Beat batter breads hard by hand or with an electric mixer to make the gluten form faster. This is especially important if you will not be kneading the bread. (When the dough comes away from the sides of the bowl, you'll know you've beaten it enough.)

Microwave English Muffin Bread

5 cups unsifted bread flour
1 tablespoon sugar
2 teaspoons salt
2 packages active dry yeast
½ cup water (barely warmer than your finger)
2⅓ cups milk
¼ teaspoon baking soda
1 tablespoon water

Yield: 2 loaves

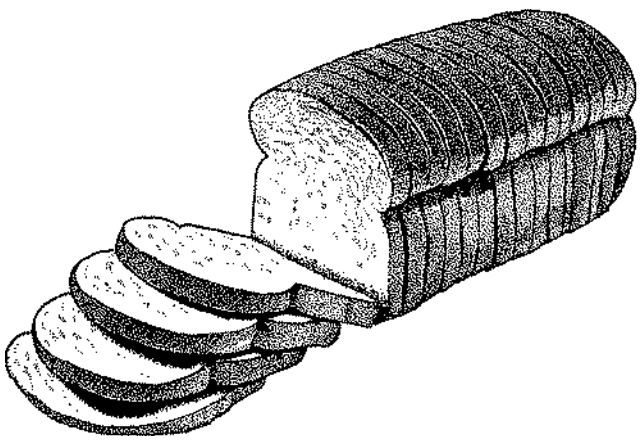
In a large mixing bowl, combine 3 cups flour, sugar and salt. Dissolve yeast in the ½ cup of barely warm water. Heat milk until barely warm (same temperature as the water) and combine with yeast mixture; add this yeast/water/milk mixture to the flour/sugar/salt mixture. Beat by hand or with a mixer until smooth. Stir in the remaining 2 cups of flour to make a stiff batter. Cover and let the batter rise in a warm place until it is light and doubled in size. This takes about 1 hour.

Dissolve baking soda in 1 tablespoon of warm water. Stir down the yeast batter and blend in the soda mixture, mixing until it is well blended. Divide batter between two greased 1 ½-quart (8-inch by 4-inch) glass loaf dishes. Cover and let the batter rise in a warm place until it doubles in size, about 45 minutes.*

Cook each loaf, uncovered, six minutes in the microwave oven, or until no doughy spots remain. Cool five minutes. Loosen edges and remove from pan. Cool completely. To serve, slice, then toast slices in toaster or under broiler in conventional oven until edges are brown.

*To bake in conventional oven, follow the directions to this point and then let the batter rise in a warm place (80 F) until dough reaches top of the pan (about 45 minutes). Bake in 350 F oven for 40 to 45 minutes.

Nutritional information: When each loaf is cut into 16 slices, a slice contains 83 calories, 3 grams protein, 16 grams carbohydrates, .7 gram fiber, .6 gram fat, 1.7 milligrams cholesterol, .9 milligram iron, 83 milligrams sodium.



You have many ways of putting together yeast, flour and water to come up with bread. Pioneers heading West sometimes used the flour barrel itself as a mixing bowl, hollowing out a place in the middle of the flour to mix a batch of bread dough. Whatever works. If you haven't got a flour barrel (and a Conestoga wagon to set it in) you might like to try one of the following methods instead.

Batter Method

Batter bread is bread you can make without getting your hands sticky — no kneading required. The two previously listed recipes in the microwave section are examples of batter breads. The mixture of yeast, flour, water, salt, sugar and other ingredients is thinner than a dough, and simply is mixed and allowed to rise in the bowl or baking pan. The texture of the finished loaf is different from that of dough loaves, generally being more open and a little rougher.

Rapid-mix Method

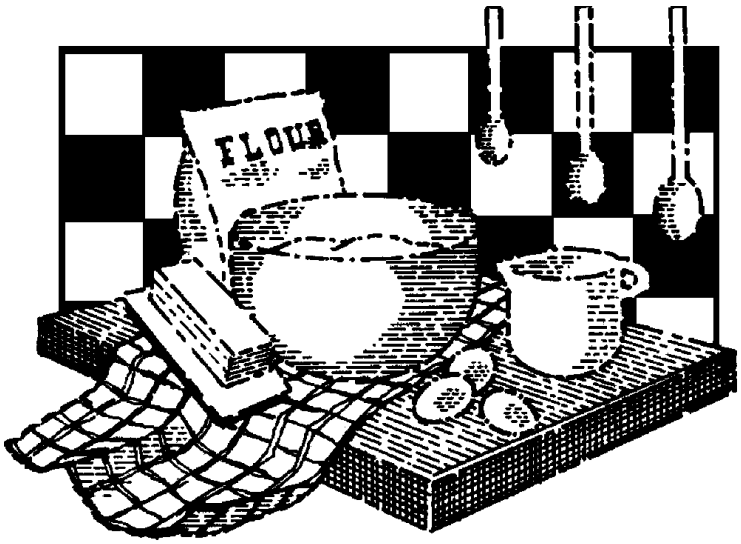
You usually dissolve yeast in liquid before adding it to the flour. In this method, it isn't. Instead, you mix undissolved regular active dry yeast with some of the dry ingredients, often including the flour. You add the liquid later, and the liquid usually is slightly warmer than liquids added to standard recipes (120 to 130 F instead of 110 to 120 F). The extra warmth helps the yeast begin multiplying and lifting the bread — a boost it needs since it got no head start rising in water and sugar. This method makes blending the ingredients easier since the chance of lumps forming is reduced.

Rapid-rise Yeast Method

This really is just the rapid-mix method described above, except you use RapidRise yeast instead of regular yeast. RapidRise yeast can stand more heat than normal yeast, which means you can add the liquid at even a higher temperature (125 to 130 F), and therefore the dough will rise even more rapidly. Also, this method requires only one rising of the dough — you let is rise once, then bake it. You can convert any conventional bread recipe to accommodate this method; use the easy conversion steps on the back of the RapidRise yeast package.

Cool-rise Method

You mix, knead and shape the cool-rise dough all at once, then put it in the pan and refrigerate it for two to 24 hours. You can bake it whenever convenient during that period. You can use either regular or RapidRise yeast, but the recipe must be designed for cool-rise dough. You'll find a cool-rise recipe on page 23.



Vocabulary: **To *stir down* a batter bread means to stir the raised dough until it is almost back to its original size.**

Frozen Dough Method

One tactic for serving hot bread fast is to start with frozen dough. This shortens the time between the moment you decide some hot bread would be nice and the moment you have it hot in hand. Here are some tips to keep in mind while buying frozen loaves.

- Buy fresh loaves (note the expiration date on the package).
- Be sure the product is frozen solid and the loaves are nicely shaped. (Misshapen loaves could mean the dough has been thawed and has lost some of its yeast action.) The dough should be a creamy white color.
- Be sure the package has no holes in it; these could cause the dough to dry out.
- Beware of a package full of ice crystals: this indicates an old or poorly handled product.
- Store frozen loaves carefully and quickly in the freezer. Do not freeze dough after it has once thawed. If dough thaws, let it rise and bake it right away — then freeze the baked bread.
- Store the dough in the coldest part of the freezer, and for best results use it in a month or two.
- Follow package directions for thawing and baking the dough.

You may wish to add to the basic loaf to suit your taste. For instance, you might brush the frozen or partially thawed loaf with melted butter and garlic, with butter and onion salt, or with butter and some other seasoning. Or you might want to brush it with water for a darker crust. Or brush it with egg white and then sprinkle it with crushed herbs or sesame seed or poppy seed.

Also, you can use the frozen loaf for more than bread. You can make pizza and pastry crusts from it. You can wrap ground beef, tuna, frankfurters or cheese in portions of the dough to create snacks and easy meals. To do this, flatten the dough and place the filling in the center, then wrap the filling with the dough. Sealing edges well is important.

Finally, you may substitute the frozen dough for most sweet roll recipes that use about 3 cups of flour. (You can experiment, making your rolls with a variety of filings and in a variety of shapes.)

Using a Bread Machine

If your family owns a bread machine, it makes good sense to use it. But you will find that you obtain the best results from recipes developed specially for bread machines. Consult the directions and recipes that come with the machine.

One of the great advantages of using a bread machine is the lack of mess. You will find cleanup is a breeze. These machines have removable pans into which you place your ingredients, push a button and the machine does the rest.

If you enjoy kneading the dough yourself, you may select a cycle that allows you to remove the dough from the machine so you can complete the process. This way your bread can be shaped any way you choose. Each bread machine is slightly different, so pay special attention to the directions and recipes for your machine. But, the following basic bread recipes have worked for many bread machines.

White Bread

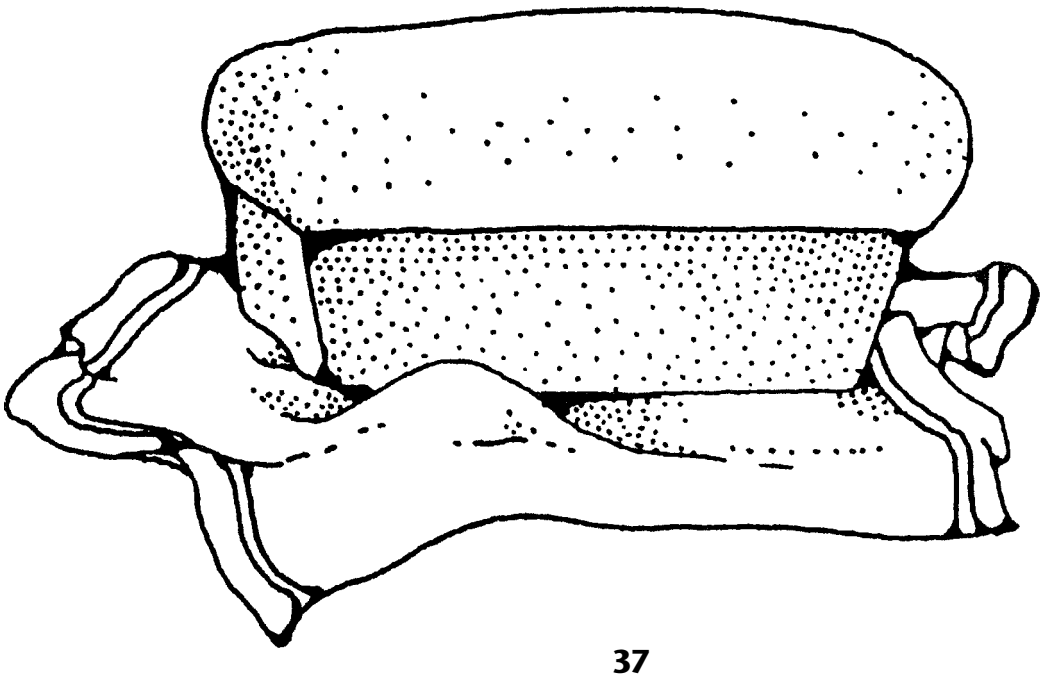
1 1/2 teaspoons dry yeast
2 1/2 tablespoons nonfat dry milk
2 cups bread flour
2/3 teaspoon salt
1 1/2 tablespoons sugar or honey
1 small egg (room temperature)
2 tablespoons soft margarine
2/3 cup warm water

Makes a medium-sized loaf

Whole-wheat Bread

1 1/2 teaspoons dry yeast
1/4 cup nonfat dry milk
2 cups bread flour
1 cup whole-wheat flour
1 1/2 teaspoons salt
2 tablespoons honey or molasses
1 egg
2 tablespoons soft margarine
1 cup warm water

Makes a large loaf



Evaluating Yeast Bread Made with a Bread Machine

Evaluation standards for traditional loaves and loaves made in a bread machine differ little, except that machine-baked loaves:

- Tend to be flatter
- Will have a hole in the bottom
- May have a less tender and more blistered crust than traditional loaves
- Usually will have no shredded border

Tips for Evaluating Yeast Bread

- Handle the whole loaf enough to observe size, shape, weight and browning on top and bottom.
- Cut off about one-third of the loaf. From the larger portion, cut one or two thin slices.
- Hold a slice of bread up to the light to observe the size of the cells and their uniformity from top to bottom of the slice.
- Smell for characteristic aromas.
- Press slice of bread to see if it is springy. Break for tenderness.
- Taste a small piece to evaluate flavor.

Baking Record Form

Name _____ Age_____ Number of years in 4-H_____

Years in baking projects_____

Project meetings held_____ Number attended_____

Products prepared	Date	Comments (Excellent, Good, Fair)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(Add pages if needed.)

What new skills did you learn? Which skills were improved?

_____

_____

_____

_____

Activities

Tours taken related to this project:_____

_____

Judging experience(s): _____

_____

Demonstration: _____

_____

Citizenship:_____

_____

Leadership: _____

_____

Exhibits

Product Where exhibited Placing

_____

_____

_____

_____

_____

_____

_____

_____

Leader, helper, or parents' comments: _____

_____

_____

_____ _____

Member signature Parent signature

_____

Project leader signature

(Add pages as needed.)

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