Foods #TCDProjectChallenge Instructions:

- ☐ Read through the Lesson Plan.
- ☐ Complete the challenge.
- ☐ Fill out the Lesson Worksheet (include circling your age level, Before and After Self-Evaluation, Life Skills Learned, Leadership (if applicable), Evaluation, Citizenship, Signature and Date).
- ☐ Take a picture during some part of your Challenge.
- ☐ Email your challenge picture and a picture of the front and back of your completed Lesson Worksheet to pmaddy@ksu.edu or text it to785-877-7262.
- ☐ Challenge pictures will be posted (not the worksheet pictures) on our respective county 4-H Facebook pages and our Twin Creeks District Facebook page.
- ☐ Your name will be entered into a drawing for a project prize that will be given at our 2020 Achievement Banquet next fall.
- ☐ Each time you complete a challenge, your name will be entered into a drawing for that project area.
- ☐ You can complete any and all challenges, even if you are not enrolled in 4-H or in that specific project area.
- ☐ Challenges are divided into three age groups -- 7 to 9, 10 to 13, and 14 and up.
- ☐ **Pictures of your challenge and lesson worksheets are due by the last day of the month, December 31, 2019.**
- ☐ Printed copies of the challenge can be picked up at your local Extension Office.
- ☐ Do not hesitate to contact me if you have any questions (pmaddy@ksu.edu or 785-877-5755 or 785-877-7262). I am excited to see your pictures and what you learn through these challenges.

Foods: *Making Bread*

Circle Your Age Level:

Age 7 to 9:
Cornbread

Age 10 to 13:
White Batter Bread

Age 14 & up:
Oatmeal Bread

Time: varies

Goal:

Learn the basics of bread making.

Self-Evaluation BEFORE: Using the rating scale below, answer the following statements:

1 = not at all
2 = a little
3 = a lot

I know how to…

Break an egg……..1 - 2 - 3

Follow recipe directions…..1 - 2 - 3

Avoid spreading germs while I am cooking ……..1 - 2 - 3

INSPIRE KIDS TO DO

#TCDProjectChallenge

Instructions:

Ages 7 to 9:

Read pages 28 and 29.

Prepare the Cornbread recipe - page 56.

Rate your cornbread - page 57.

Ages 10 to 13:

Read pages 21—26, and 29.

Prepare the White Batter Bread recipe on page 46.

Evaluate your bread - page 30.

Ages 14 and up:

Read pages 21—29.

Prepare the oatmeal Bread recipe on page 25.

Evaluate your bread - page 30.

All - Troubleshooting Problems (page 31) is available to help you solve any problems with your product.

Ingredients:

Read your recipe all the way through before starting to make sure you have all the needed ingredients and equipment.

Tips & Tricks:

Read the suggested materials mentioned above. This will help you have a much better product!

Foods: *Making Bread*

#TCDProjectChallenge

Life Skills Learned:

(Check all that apply.)

- ☐ Positive Self-Concept
- ☐ Inquiring Mind
- ☐ Concern for Community
- ☐ Sound Decision-Making
- ☐ Healthy Interpersonal Relationships

Evaluation:

Why is cooking an important skill to have? _____

_____

How can you use the skill that you learned in the future?

_____

What was the hardest part of the activity? _____

_____

Share:

- ☐ Shared my bread with a neighbor/friend
- ☐ Share what you have learned with someone else
- ☐ Shared my bread with a Long Term Care resident
- ☐ Other _____

Self-Evaluation BEFORE: Using the rating scale below, answer the following statements:

1 = not at all
2 = a little
3 = a lot

I know how to…

Break an egg……1 - 2 - 3

Follow recipe directions…..1 - 2 - 3

Avoid spreading germs while I am cooking ……1 - 2 - 3

_____ _____

Member's Signature *Date*

Resources:

4-H Cooking 101, 201, 301 and 401 - University of Illinois

Patsy L. Maddy, 4-H Youth Development Agent
Jenilee Godsey, Youth Ag - Alyssa Rippe-May, Livestock/Horticulture
Keith VanSkike, Ag & Natural Resources - Karen Shepard, FCS
Stacy Brown, Director & FCS

K-STATE Research and Extension | Twin Creeks District

▲ Oatmeal Bread

Yield: 2 loaves, 20 slices per loaf

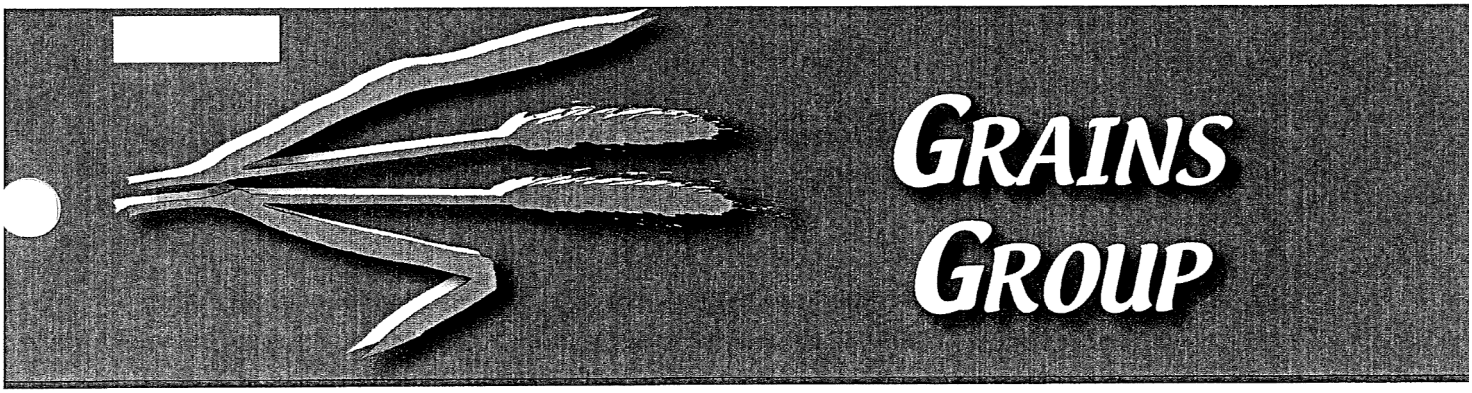
Ingredients

2 packages active dry yeast
3/4 cup water, heated to 100 to 110 degrees F
3 tablespoons sugar
3 tablespoons melted butter or oil
2 cups milk
2 teaspoons salt
1 cup quick oats
3 cups bread flour
3 cups whole wheat flour

Order of Work

1. In a large mixing bowl combine yeast, water, and sugar; let stand 10 minutes.
2. Stir in butter or oil, milk, salt, oats, and bread flour; beat until smooth.
3. Mix in enough remaining whole wheat flour needed to form a soft dough and mixture begins to pull away from sides of bowl.
4. On a lightly floured surface, turn out dough; knead until dough is smooth and elastic; about 8 to 10 minutes.
5. Place dough in a large mixing bowl lightly coated with nonstick cooking spray. Cover with clean, damp dishtowel. Let rise in warm place, free from drafts, until doubled in size, about 40 minutes.
6. Lightly coat two 9" x 5" loaf pans with nonstick cooking spray; set aside.
7. Punch down dough and turn out on lightly floured surface. Cover and let rest 10 minutes.
8. Shape into loaves. Place in prepared pans. Cover and let rise until doubled, about 45 minutes.
9. Preheat oven to 425 degrees F. Bake loaves 25 to 30 minutes, until lightly browned and bread sounds hollow when tapped.
10. Remove from pans and place on wire rack to cool.

Nutrition Facts per Slice: *93 calories, 2 g fat, 131 mg sodium, 17 g carbohydrate, 2 g fiber, 3 g protein, 22 mg calcium*



Yeast Breads

Some people won't try making yeast breads because they think the breads are too difficult to make or that the dough won't rise properly. When you understand and follow some basic techniques for making bread, it's really quite simple and enjoyable. Why not try your hand at making yeast breads! You should have the basic ingredients in your kitchen — flour, liquid, and yeast. Recipes usually add sugar, fat, and salt to give the bread more flavor and improve the texture.

Flour is the base for yeast breads. It contains a form of protein called **gluten**. When flour is mixed with liquid, such as milk or water, the gluten becomes rubbery or elastic. The more the dough is mixed or kneaded, the stronger the gluten becomes. A high gluten flour is best for making yeast breads. Strong, elastic gluten strands help trap the gases and moisture produced by the yeast during rising and baking. The gases cause the dough to expand or rise and produce the typical texture of a yeast bread — also known as the **crumb**.

Several types of flour may be used in making yeast breads. You are probably most familiar with wheat flour. Wheat flour can be combined with flours made from other grains, such as, rye, corn, oats, or rice.

Enriched all-purpose flour is the most common and most versatile white flour available. All-purpose flour is made by removing the bran (the outer layers) and germ of the wheat grain and grinding the remaining endosperm. Then the flour is enriched with vitamins and minerals. This flour is usually bleached to give it a very white color. The bleaching is not harmful. You can use unbleached all-purpose flour in place of bleached all-purpose flour. All-purpose flour is used to make most bread.

Bread flour has more gluten-forming protein than all-purpose flour. It produces bread that has a higher **volume** because it contains more stretchy gluten.

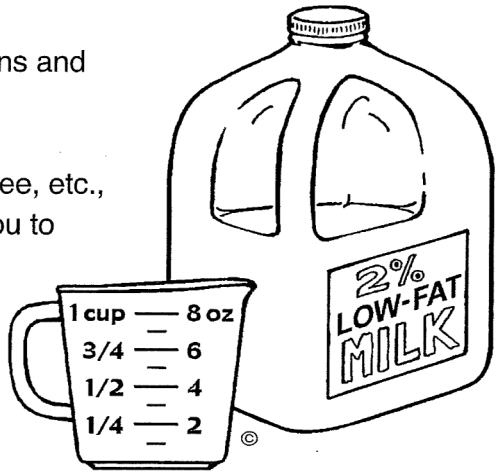
Whole wheat or graham flour is ground from the entire kernel of wheat. The presence of the bran and germ gives it a light brown color and makes it coarser and denser than white flour. The bran and germ also dilute the gluten content somewhat, so

it is more difficult to make light textured bread using all whole wheat flour. Because of this, whole grain flours are usually combined with bread or all-purpose flour to make a better crumb.

Whole wheat flour contains the germ of the grain, which adds a small amount of fat to the flour. The fat in whole wheat flour may cause it to spoil, or become **rancid**, if it is stored in a warm place for a long time. Whole wheat flour is best stored in the refrigerator or freezer.

Liquids

Liquids are added to the yeast dough to moisten the gluten proteins and dissolve ingredients such as salt and sugar.



Several liquids including milk, fruit juices, water, potato water, coffee, etc., are used in yeast dough. Some recipes for yeast bread instruct you to **scald** the milk. Scalding — heating the milk until it almost boils — changes some of the proteins in milk and makes the yeast bread softer. In the past, milk was scalded to destroy the bacteria in unpasteurized milk. Using pasteurized milk makes scalding unnecessary.

Yeast

Yeast provides the rising, or **leavening**, power for yeast breads. Yeast is a mass of tiny plants that can only be seen with a microscope. Yeast doesn't grow when it is kept dry and cool. However, it grows rapidly when moisture, carbohydrates or sugar, and correct temperature are present.

When adding liquid ingredients to yeast to make it grow, it is important to use a food thermometer to check the temperature of the liquids. Too high a temperature will kill the yeast plants. Too low a temperature will slow or stop growth. Either way, the bread will not rise properly. Ideally, yeast should be dissolved in water that is about 100 degrees F (about body temperature). The dough should rise in a place where the temperature is about 80 degrees F. As it grows, the yeast consumes the carbohydrates and/or sugar and produces carbon dioxide and alcohol. The carbon dioxide becomes trapped in the gluten strands of the dough, causing the dough to rise and producing the light, porous texture of yeast breads.

Types of yeast

Active dry yeast is granulated and does not need to be refrigerated. It works best when dissolved in water (100 to 110 degrees F) prior to mixing. It can be purchased in strips of three 1/4-ounce packets, which don't require measuring.

Rapid Rise, Quick-Rise, and Instant yeast cause bread to rise about twice as fast as active dry yeast. Mix this yeast with other dry ingredients before adding the liquids. It can be used in all yeast bread recipes and substituted for active dry yeast. This yeast is available in strips of three 1/4-ounce packets and 4-ounce jars. Substitute 2 1/4 teaspoons of bulk yeast for one 1/4-ounce packet of yeast.

Bread Machine yeast is a fast-acting yeast designed for use in bread machines. Mix it directly with other dry ingredients before adding the liquids. It can be used in all yeast bread recipes and is available in 4-ounce jars. Substitute 2 1/2 teaspoons of bulk yeast for one 1/4-ounce packet of yeast.

Compressed yeast or cake yeast is a mixture of starch and yeast that keeps for about three weeks in the refrigerator. While many older bread recipes call for this type of yeast, it is no longer available in most grocery stores. Substitute one 1/4-ounce package active dry yeast for one cake (.06 oz) compressed fresh yeast.

Salt

Salt is an important ingredient in yeast bread. Salt adds flavor and it affects how quickly the yeast rises, and that affects the texture of the bread. Salt slows the growth of the yeast and helps produce a fine texture. Yeast breads made without salt, or with a reduced amount of salt, have a coarse texture. Bread made without salt may rise too much and fall.

Mixing Yeast Dough

Most recipes call for an exact amount of liquid, but list an approximate amount of flour. That is because the amount of liquid absorbed by the flour varies depending on the variety of wheat used to make the flour, how the flour was milled, how long the flour was stored, and other factors. When mixing dough, gradually add the flour until the dough no longer sticks to your hands or the kneading surface.

There are several ways to make yeast breads. You can use any of the following methods to make the dough for loaves, rolls, tea rings, or braids.

Methods

Conventional or straight dough method — Add the yeast to warm water (100 to 110 degrees F) and stir until it dissolves in the liquid. Then add the salt, sugar, fat, and part of the flour. Mix the batter and allow it to rise until it is light and **spongy** — small bubbles form on the surface of the batter. Add the remaining flour and mix well. **Turn the dough out** — use a spoon or spatula to push the ball of dough out of the bowl — onto a lightly floured surface and knead the dough. Use the conventional method when making sweet dough and whole-grain dough.

Rapid-mix method — Mix the undissolved dry yeast with part of the flour and other dry ingredients. Add the hot liquid (120 to 130 degrees F) and fat. Beat the mixture until it is smooth. Then add the remaining flour to the dough and mix.

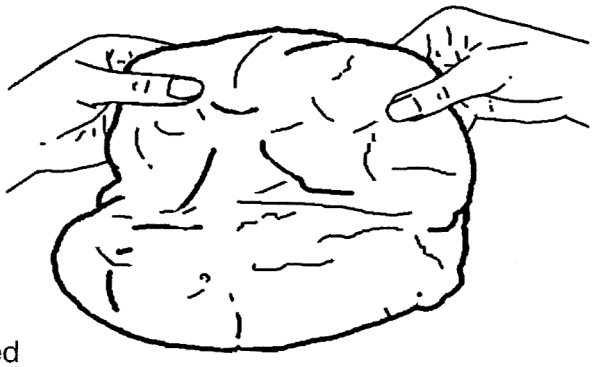
Cool rise method — Use the conventional method to mix the dough, but use more yeast and salt. Knead the dough and shape it. No rising is necessary before shaping the dough. Then refrigerate the dough for 2 to 24 hours before baking.

Batter method — Mix the dough, but do not knead it. The dough will be thinner and stickier. Pour or drop the dough into a baking pan rather than shaping it. The bread has a coarser texture than kneaded dough and often has an uneven shape.

Dough hook or food processor — Use the dough hook attachment on a heavy-duty mixer or food processor to make yeast breads. The dough hook and food processor can knead dough very quickly, usually in a couple of minutes. Most food processors can only handle one loaf at a time and cannot be used to make large batches of dough. After mixing the dough with a dough hook or food processor, allow the dough to rise.

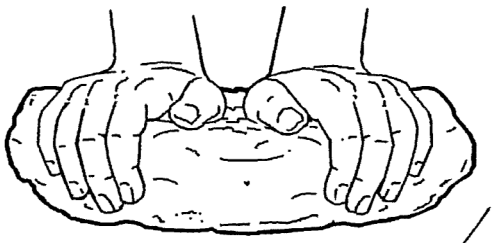
Bread machine — use the setting for dough. Combine all the ingredients in the bread pan and set the machine to mix and knead the dough. After the first rise, which takes about 80 to 90 minutes, shape the dough into loaves or rolls.

Kneading Dough



Kneading the yeast bread dough stretches the gluten and makes the gluten strands elastic. Well-kneaded bread has a dome shape, a soft and silky texture, and fine, uniform grain. Bread that was not kneaded enough has a coarse, irregular texture.

To knead the dough, place it on a lightly floured surface and flatten it slightly with floured hands. Then pick up the farthest edge of the dough and fold it over on top of the nearest edge.



After folding the dough, lightly push down and forward with the heels of your hands. Give the dough a quarter turn and repeat the process. Continue this for about 10 minutes. Add a little extra flour to the dough if it sticks during kneading. Only use enough flour to prevent the dough from sticking. Using too much flour will cause the bread to be heavy and have a dense texture.

The dough is kneaded enough when:
1) it feels springy and elastic; 2) **blisters** (pockets of gas) form on the surface of dough,
3) it has a smooth satiny surface; 4) and it does not stick to the surface or your hands.

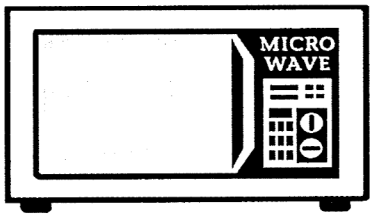
Letting Dough Rise

For most methods after the dough is kneaded, allow it to rise in a bowl before shaping the loaves or rolls. The rising time is affected by the type of dough, the temperature of the dough and the room, and the amount of humidity in the air.

For rising, place the dough in a large mixing bowl lightly coated with oil or nonstick cooking spray. Then lightly coat the top of the dough with oil or nonstick cooking spray. Cover the bowl with a damp, clean dishtowel or plastic wrap. The cover prevents a dry skin from forming on the surface of the dough. If a dry skin forms on the dough, it keeps the dough from stretching so it doesn't rise properly. When the dough is kneaded, streaks of the dry skin remain in the dough and affect the texture of the baked bread.

Place the dough in a warm place (about 80 degrees F) that is free from drafts. One good way to raise yeast dough is to place the bowl of dough in an unheated oven, then set a large pan of hot water under the bowl on the oven's lower rack. Let the dough rise until doubled in size. To check to see if the dough has raised enough, use the finger test. Push two fingertips about 1/2" into the dough. When you remove your fingers, the dents should remain if the dough is ready.

You can also use a microwave oven for raising bread dough.



First, check the owner's manual or cookbook that came with your microwave oven to find out whether raising dough in your oven is recommended. If it is recommended, while kneading your dough, place 3 cups water in a 4-cup microwave-safe measuring cup. Heat the water on high for 6 1/2 to 8 1/2 minutes or until the water boils. Move the measuring cup to the back of oven. Lightly coat a microwave-safe mixing bowl with nonstick cooking spray (For more information on testing for microwave-safe dishes, see *4-H Cooking 101*, page 19.) Place the kneaded dough in the prepared bowl and lightly coat the dough with the nonstick cooking spray. Cover the bowl with waxed paper and place in the microwave oven with the hot water. **Heat dough and water on *low* (10% power)** for 13 to 15 minutes or until dough has doubled in size. Punch down dough and shape into loaves or rolls.

Place the shaped dough in microwave-safe dishes. If you are using metal baking sheets or muffin cups, you cannot use the microwave for this step. Return the dough to the microwave oven with the hot water. Cover the dish with waxed paper. **Heat on *low*** for 6 to 8 minutes, or until dough has doubled in size.

Resting Dough

Some recipes call for resting the dough between mixing and kneading, and again between rising and shaping. You can add this step with any yeast bread recipe. Resting makes kneading and shaping easier. Allow the dough to rest for about 10 minutes.

Resting the dough also helps prevent adding too much flour to the dough. While the dough is resting, the gluten begins to develop and the flour absorbs some of the liquid. Breads made from whole-grain flours especially need a rest period since these flours typically have less gluten forming protein.

Shaping Dough

After the dough has completed rising, punch it firmly to release the gas that has collected. Recipes call for you to "**punch down the dough**." Remove the dough from the bowl. Then divide the dough and shape it into the number of loaves or rolls you are making. Place the dough on a lightly floured surface, cover the dough, and let it rest for 10 minutes.

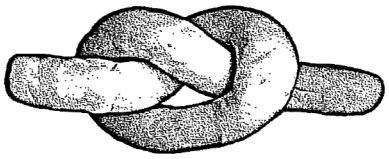
You may use plain, whole wheat, refrigerator, or sweet dough for any of the following rolls or loaves.

Shaping Loaves of Bread

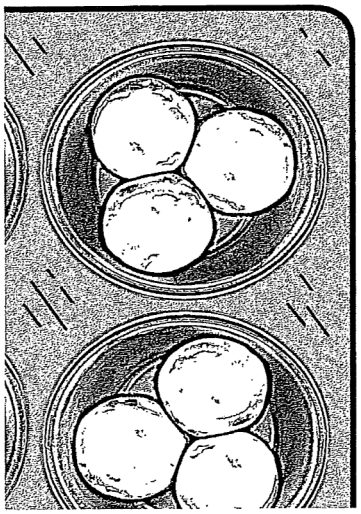
Follow these steps to create uniform loaves of bread.

- Roll the dough with a rolling pin into a 10" x 6" rectangle, forcing out the gas bubbles.
- Roll the dough up tightly, beginning with the narrow end.
- Seal the edges by pinching them into the roll.
- Seal the ends by pinching them into the roll.
- Place the loaf, with the seam side down, in the center of a baking pan lightly coated with nonstick cooking spray.
- Cover the bread with a damp, clean dishtowel while it is rising. Let the bread rise until doubled in size.

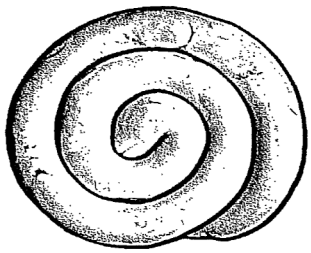
Shaping Rolls



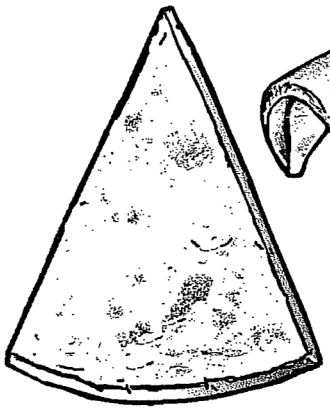
Bowknots — Divide dough to form individual rolls. Shape each piece into a 9-inch rope by rolling the dough between your hands. Twist (as if tying a shoelace) to make a bowknot. Place at least one inch apart on baking sheet lightly coated with nonstick cooking spray.

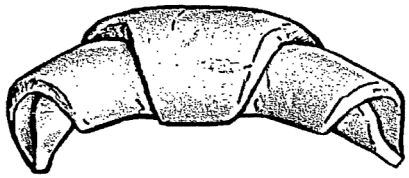


Cloverleaf rolls — Form three 1-inch balls of dough and place in muffin tin lightly coated with nonstick cooking spray.



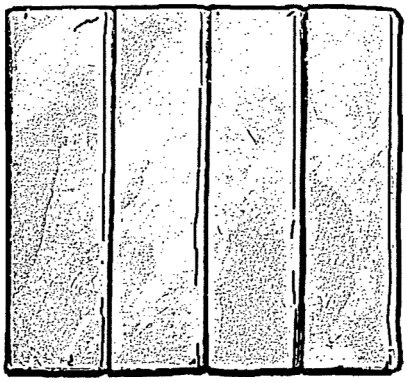
Coils — Divide dough to form individual rolls. Shape each piece into a 9-inch rope by rolling the dough between your hands. Hold one end of dough and loosely wind dough around itself; tuck end underneath. Place at least one inch apart on baking sheet lightly coated with nonstick cooking spray.

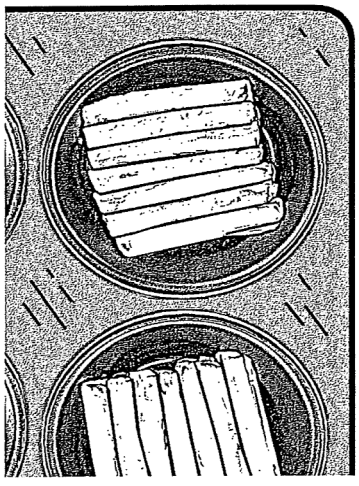




Crescents — Roll dough into a 12-inch circle, 1/4-inch thick. Lightly brush with butter or margarine, if desired. Cut into 12 pie-shaped pieces.

Beginning with wide edge of dough, roll tightly. Curve rolls slightly to form crescents. Place crescents at least one inch apart on baking sheet lightly coated with nonstick cooking spray.





Fan-Tans — Roll dough into a rectangle 1/4-inch thick. Lightly brush with butter or margarine, if desired. Cut into 2-inch wide strips and stack evenly on top of each other. Cut at one-inch intervals with knife. Place cut side down in muffin tin lightly coated with nonstick cooking spray.

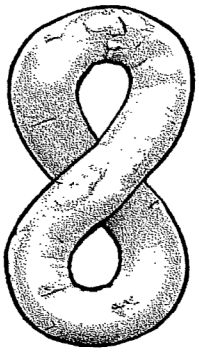
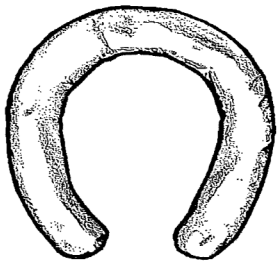
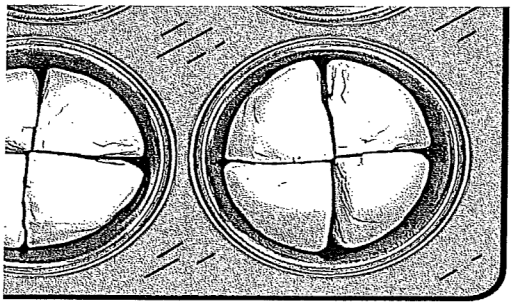


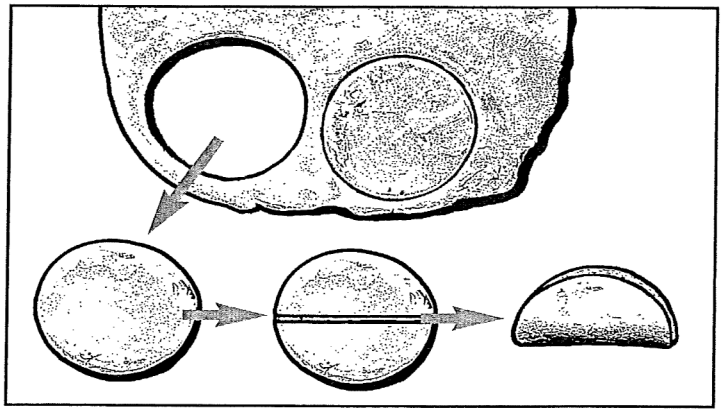
Figure eights — Divide dough to form individual rolls. Shape each piece into a 9-inch rope by rolling dough between your hands. Shape rope into a figure eight and seal ends. Place at least one inch apart on baking sheet lightly coated with nonstick cooking spray.



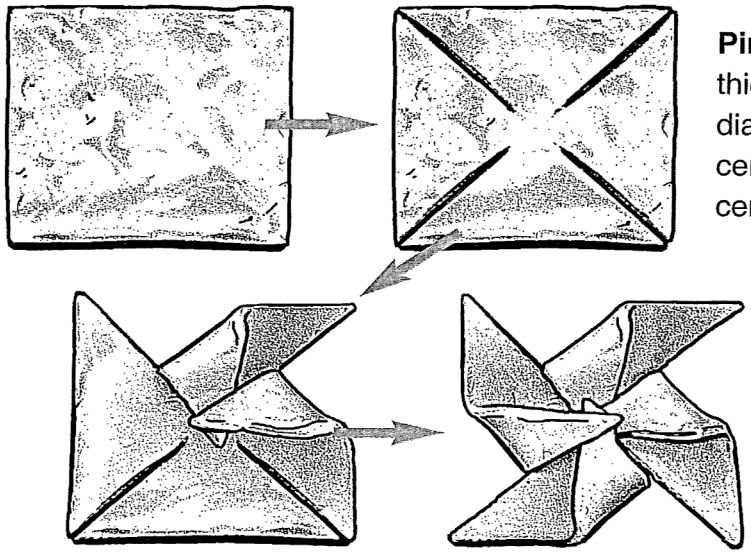
Horseshoes — Divide dough to form individual rolls. Shape each piece into a 9-inch rope by rolling dough between your hands. Curve to form a horseshoe. Place at least one inch apart on baking sheet lightly coated with nonstick cooking spray.



Lucky clovers — Divide dough into individual rolls. Place rolls into muffin tins lightly coated with nonstick cooking spray. Using kitchen scissors, cut each roll into quarters.



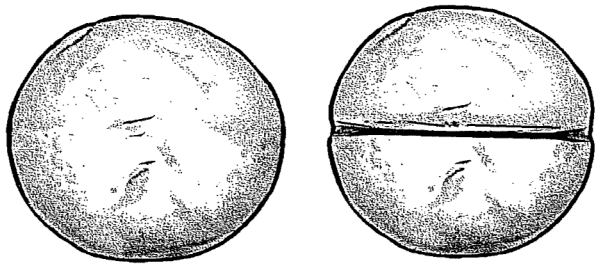
Parker House rolls — Roll dough on lightly floured surface to 3/8-inch thickness. Cut with 2 1/2-inch biscuit cutter. Make indentation across each circle of dough with the back of a table knife. Lightly brush one-half of the circle with melted butter or margarine. Fold in half, so edges just meet and press edges together. Place rolls about 1/2 inch apart on baking sheet lightly coated with nonstick cooking spray.



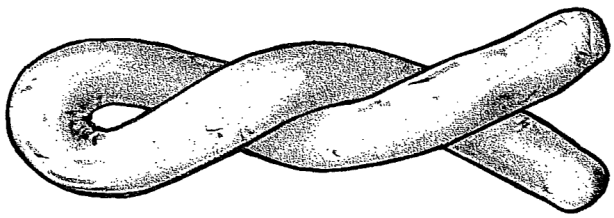
Pinwheels — Roll dough into a square 3/8-inch thick. Cut into 3" x 3" squares. Cut squares diagonally at each corner to about 1/2 inch from center. Place small amount of butter or jelly in center, if desired.

In rotation, bring the same point of each corner to the center of each square.

Pinch points to seal. Place at least one inch apart on baking sheet lightly coated with nonstick cooking spray.



Twin rolls — Shape each roll and place on baking sheet lightly coated with nonstick cooking spray. Use knife lightly coated with cooking spray to cut part way through the center of each roll.



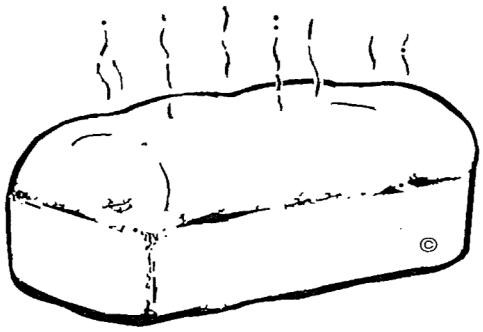
Twists — Divide dough into individual rolls. Shape into a 9-inch rope by rolling dough between your hands. Fold in half and twist. Place at least one inch apart on baking sheet lightly coated with nonstick cooking spray.

Baking Yeast Breads

During baking, the dough releases carbon dioxide gas, the yeast is destroyed, and the alcohol produced during rising evaporates. Bake loaves of bread at 375 to 425 degrees F. Baking temperatures that are too low allow the yeast to continue to rise, resulting in bread with a coarse texture. When the temperature is too high, the outside of the bread will burn before the inside is done.

There is often a sudden increase in the volume of yeast dough during the first 10 to 12 minutes of baking. This sudden increase — called **oven spring** — is caused by gases that expand when heated and the continuing action of the yeast. When the dough reaches 140 degrees F, the yeast is destroyed.

Bread is done when the crust is golden-brown and the loaf has a hollow sound when tapped on the top crust. The loaf pulls away slightly from the sides of the pan and usually drops out of the pan without help. Remove the bread from the baking pans immediately to prevent the crust from getting soggy. Cool the uncovered loaves on wire cooling racks.



EVALUATING YEAST BREADS — How Did You Do?

Evaluate your bread when it is done baking. How did you do? Bread making is like an art — the more you do it, the better you become. Keep practicing!

Appearance The bread should have…

____ An evenly rounded top
____ A symmetrical, well-shaped, uniform size
____ A smooth, tender crust
____ Good volume
____ A uniform golden-brown color
____ No streaks

Texture The bread should be…

____ Free from large air bubbles
____ Moderately fine and even-grained
____ Soft and free of crumbliness

Crumb The bread should be…

____ Moist and silky
____ Tender to the touch
____ Elastic in quality

Flavor The bread should have…

____ A pleasing, well-baked flavor
____ A nutlike or wheaty taste

EVALUATING YEAST ROLLS — How Did You Do?

Appearance The rolls should be…

____ Attractively shaped, plump, and all the same size
____ Golden-brown and a bit lighter on the sides than on top

Texture ____ The rolls should have crisp, tender, and thin crusts

Crumb The rolls should be…

____ Soft and slightly moist
____ Tender so they tear or break easily
____ Even, with all air cells about the same size

Flavor ____ The rolls should have a pleasant, nutty flavor

Troubleshooting Problems

Problem	*Reason*
Uneven shape	Improper shaping Too much or too little dough for pan
Crust is burned	Baking time was too long Oven temperature was too high
Pale crust	Baking time was too short Oven temperature was too low Too much salt Too much sugar
Cracked crust	Improper kneading Rising period was too short Cooled too quickly
Coarse texture	Rising period was too long Oven temperature was too low or too high Poor quality flour Insufficient kneading
Heavy	Poor quality flour Improper rising Yeast was partially destroyed
Crumbly	Flour with low gluten content Dough too stiff
Yeasty flavor	Rising period was too long Temperature during rising was too high
Sour flavor	Rising period too long Oven temperature was too low Baking time was too short