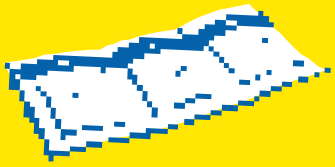
# EXPLORING THE NORTH ROLL

underwritten by
Fleischmann's® Yeast



# EXPLORING THE NORTH ROLL[1]

## Age

9–18 (See Adaptions for Younger Children.)

## Time Required

1 hour

## Location

Indoors with kitchen facilities, including refrigerator, running water, and oven

## Materials

(Please feel free to copy this list and use as a shopping list.)

- ___ flour
- ___ sugar
- ___ salt
- ___ rapid rise yeast
- ___ butter or margarine
- ___ measuring cups and spoons
- ___ bowls and mixing spoons
- ___ no-stick cooking spray
- ___ thermometers
- ___ milk
- ___ water
- ___ muffin pans
- ___ timer
- ___ pot holders
- ___ towels
- ___ paper plates
- ___ saucepans
- ___ pencils

## Objectives

To discover what happens when ingredients are omitted in a yeast roll recipe. To explore the function of each ingredient in a bread recipe and the food science behind bread baking.

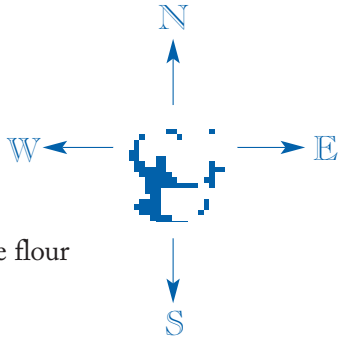
## Activity Summary

Youth work in teams to conduct experiments preparing bread and leaving out various ingredients. They observe what happens to the bread, determining the effects of eliminating salt, fat, or sugar.

## Station Set-up

Create four work stations.
Each should have:

- sugar
- salt
- bread flour or all-purpose flour
- rapid rise yeast
- margarine or butter




[1] Adapted from *Breads*, MJ1010, Members Manual, Colorado State University, Cooperative Extension Service.

- milk
- water
- measuring cups and spoons
- bowls
- mixing spoon
- no-stick cooking spray
- muffin pans
- timer
- pot holders
- towels
- saucepan
- paper plates
- pencils
- thermometers (optional)

Make copies of Handout 1 (page 2). You may wish to make copies of Fact Sheets 1 and 2 (pages 4 and 5) and Handout 2 (page 3) for discussing baking and grains in greater depth (see "Doing the Activity").

## Doing the Activity

Discuss the ingredients used to make bread and why. You may wish to refer to Fact Sheet 1 to guide your discussion. You may also use Fact Sheet 2 and Handout 2 to further discuss wheat and other grains with the group.

Explain that participants will be conducting experiments to discover how the absence of some ingredients affects yeast rolls. Divide the group into four teams. Distribute Handout 1 and review with the group. Assign a recipe variation to each team and have teams follow the instructions on the sheet.

About an hour later, when teams have finished preparing their rolls, ask them to display the products on the marked plates around the room. Ask participants if they can tell which ingredients are missing in each sample. After visual inspection, they can use taste or smell to try to determine which rolls were made without which ingredients.

## Reflect and Apply

Ask the group:

- Which roll tastes the best? Why? (*Personal preference, with explanation.*)
- Which roll tastes the worst? Why? (*Probably the roll without yeast, since the texture won't be soft and chewy.*)
- Why is it important to use salt, yeast, fat, and other ingredients when making bread or rolls? (See Fact Sheet 1.)
- How would you double this recipe? Halve it?
- How will you use what you learned here when you make bread? (*Answers will vary.*)
- Can the rolls be frozen? (*Yes! Place in freezer bags.*)

Reflect upon workplace competencies and foundation skills that were enhanced. Find out if participants used materials and time wisely (resource allocation); how successfully teams worked together (interpersonal); and if they were able to read and follow directions (basic skills, information interpretation). Did participants make decisions and solve problems well?

Have children begin or continue keeping journals. You may wish to offer a sentence to complete, such as "My search for the north roll led me over a path that was . . . ."

## Adaptations for Younger Children

For children ages five to eight, prepare the dough beforehand, letting the children work in one large group to shape the rolls. After you baked rolls, ask the children to guess which rolls were prepared without salt, yeast, or fat. Ask some of the questions found in "Reflect and Apply."

## Evaluation

What is yeast used for in a bread recipe? (*To make the dough rise and add flavor.*) Why do we use flour? (*To give bread its structure.*) Why do we use liquids? (*To dissolve yeast and help the gluten form.*) What purpose does sugar have in a bread recipe? (*To feed the yeast, producing carbon dioxide.*) Why is salt important in a bread recipe? (*It controls the action of the yeast.*) Why is fat (margarine) used? (*To give the dough flavor and to help it stretch more easily.*)

**Answers to Handout 2:** *chocolate cupcakes, spaghetti, tortillas, crackers, rolls, muffins, pasta, bagels, pitas, couscous, cereal, pretzels, cookies, bread*

## Career Contemplations

Help participants explore bread bakeries in your community. Many companies allow tours of their facilities if prearranged. Particularly interesting are the large mixers, dough-shaping equipment, and delicious aromas! Help participants prepare for the field trip in advance. You may wish to prepare a matrix of things to observe at the bakery (ovens, workers, and so on) that they can fill out at the site. Try not to give youth a lot of writing to do; a check-off system works much better for keeping all eyes on the activity.

# EXPLORING THE NORTH ROLL

## The North Roll Recipe

- 2 cups bread flour or all-purpose flour
- 2 tablespoons sugar
- 1/2 teaspoon salt
- 1 package rapid rise yeast
- 1/2 cup milk
- 1/4 cup water
- 2 tablespoons margarine or butter

1. Mix one cup flour, sugar, salt, and undissolved yeast in a large bowl.
2. Combine the milk, water, and margarine or butter in a saucepan and cook over low heat until very warm (about 120 to 130°F). The margarine or butter doesn't need to melt.
3. Slowly add the liquid to the dry ingredients; beat for 4 minutes. Stir in one cup flour; beat for 4 minutes.
4. Turn the dough out onto a lightly floured board; knead until smooth and elastic (about 5 to 10 minutes).
5. Cover and let rest 10 minutes.
6. Divide the dough into 48 equal pieces. Roll each piece into a ball. Place four balls (to signify north, south, east and west) into each greased muffin cup.
7. Cover and let rise 20 to 30 minutes or until doubled.
8. Bake at 400°F for 10 to 15 minutes or until done.

Ever wonder what would happen if you left something out of your recipe? Explore the results here! Prepare the above recipe, with changes as instructed by your leader:

**Variation One:** Prepare exactly as the recipe states. When baked, place rolls on a paper plate that is marked underneath NO CHANGE.

**Variation Two:** Omit the salt. Then prepare as the recipe states. When baked, place rolls on a paper plate that is marked underneath NO SALT.

**Variation Three:** Omit the margarine or butter. Then prepare as the recipe states. When baked, place rolls on a paper plate that is marked underneath NO FAT.

**Variation Four:** Omit the yeast. Then prepare as the recipe states. When baked, place rolls on a paper plate that is marked underneath NO YEAST.

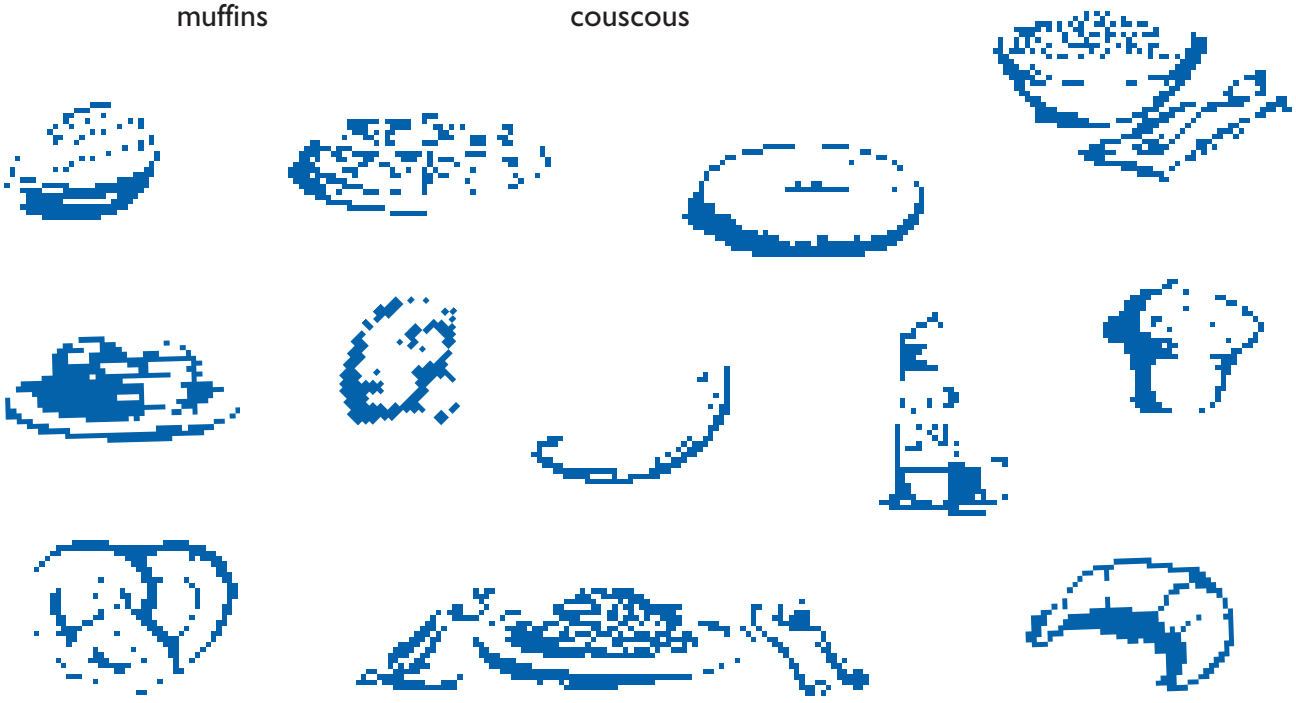
Fill in the chart below after all of the teams are finished baking.

| Trials | Describe the appearance. | Describe the taste. |
|---|---|---|
| Variation One: Prepared as recipe states. | | |
| Variation Two: Omit salt. | | |
| Variation Three: Omit fat. | | |
| Variation Four: Omit yeast. | | |

# EXPLORING THE NORTH ROLL

Which of the following usually are made from wheat?
Circle your answers.

| | | |
|---|---|---|
| chocolate cupcakes | baked beans | cereal |
| spaghetti | rice | pretzels |
| bologna | pasta | hair spray |
| tortillas | walnuts | light bulbs |
| crackers | bagels | cookies |
| cauliflower | bananas | bread |
| rolls | pitas | paper |
| muffins | couscous | |



# A CLOSER LOOK AT SPECIAL INGREDIENTS[2]

For use with any bread or roll-baking activity.

What gives sticky buns their spring and coffee rings their zing? Yeast! Yeast makes dough rise and gives it a light texture. When you add yeast to bread dough, you're mixing or kneading in a living member of the fungus family. When exposed to warm temperatures and sugar, yeast begins to grow, releasing a gas (carbon dioxide) that makes the dough rise. Yeast also gives bread a scrumptious flavor and aroma. Rapid-rising and regular yeast belong to different strains. The rapid-rise type includes more live cells, so it works faster. These yeast types are dried, processed, and treated differently.

**Flour** is ground from grains such as wheat and rye. Wheat flour often is used to make bread because it contains a protein called gluten. When flour is mixed and kneaded with liquid, the gluten stretches to develop the elastic framework that holds the gas bubbles formed by the yeast. This gives bread its structure. Flours with the highest gluten content produce breads with the largest volume. Whole wheat and rye flours have less gluten than white flour. They make loaves that are denser in texture and smaller in size.

**Liquids** are important ingredients in bread making. Milk, water, or other liquids may be used. Yeast often is dissolved in some or all of the liquid. The liquid must be the right temperature (about 105 to 115°F for hand-mixed breads) or the yeast will not activate and the bread cannot rise. Water makes breads crusty, whereas milk gives bread a soft crust.

**Sugar** helps the yeast do its job faster. Yeast digests the sugar, producing alcohol and a gas (carbon dioxide) that causes the dough to rise. Sugar also helps the crust brown and adds flavor. White sugar, molasses, brown sugar, maple syrup, or honey can all be used to make bread.

**Salt** controls the action of the yeast. It slows the rising time and allows the bread's flavor to develop.

**Fats** such as margarine, butter, and oil give breads flavor and make them soft and tender.

**Eggs** add flavor and color and help leaven the bread. They also keep the crust tender. Eggs aren't added to every recipe.

**Other ingredients** include herbs, spices, nuts, and fruits. These add variety and flavor to breads.

[2] Adapted from *Fleischmann's® Yeast Best-Ever Breads.*

# GRAINS OF TRUTH

Wheat is probably the best known of all whole grains used in breads. But other grains such as rye and oats are also used throughout the world to make breads.

**Wheat** — Did you know . . .

- Wheat is a grassy plant. Stalks bear seeds, which are edible.
- There are more than 30,000 varieties of wheat, classified into six major groups, according to hardness, color of the kernel, and the time of year planted. They include hard wheat, hard red winter wheat, soft red winter wheat, hard white wheat, soft white wheat, and durum wheat. All groups are grown in the United States.
- Semolina is made from coarsely ground durum wheat. It is high in protein and is used to make pasta and couscous, a North African and Latin American dish that is gaining popularity in North America. Durum flour is a by-product from the production of semolina. It's used to make American noodles, some pastas, and some specialty breads.
- The average person in the United States eats more than 138 pounds of wheat-flour products in a year. White bread is made from wheat.
- Wheat is the only flour that contains gluten proteins.

**Rye** — Did you know . . .

- Rye was once considered a weed because it grew in wheat fields.
- Rye is used to make breads, cereals, and pasta. It's a good source of carbohydrates and fiber, and contains B vitamins, iron, phosphorus, and potassium.
- Rye is milled into flakes, meal, and flour. It is sifted to remove the bran and germ. Rye flour can be light, medium, or dark in color.
- Rye flour contains about the same amount of protein as wheat flour. However, it does not contain gluten, which allows the yeast to expand the dough. As a result, rye flour makes small, compact loaves of bread. To make bread with acceptable volume, bakers should use no more than 20 percent dark rye flour, 30 percent medium rye flour, or 40 percent light rye flour.

**Oats** — Did you know . . .

- At one time oats were considered weeds.
- When oats are prepared, their outer shells, or hulls, are removed. The whole oat kernel without the hull is called a groat. Oat products are prepared from the groat. For instance, oatmeal is made by steaming the groats and rolling them flat.
- Instant oatmeal is made by flattening, pre-cooking, and drying pre-cut pieces of groats.

More than 6 million youth, 5 to 19 years old, participate in 4-H annually through clubs, groups, school enrichment and after-school programs, and activities. There is a 4-H youth development program in every county in the nation. For more information on 4-H, contact your County Cooperative Extension Office.

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National 4-H Council is a not-for-profit youth development organization that fosters innovation and shared learning for youth workers and youth leaders. National 4-H Council partners with 4-H, the Cooperative Extension System, and other organizations to pursue its vision, accomplish its mission and implement its strategies. National 4-H Council's programs are open to all without regard to race, color, sex, handicap, religion, age, sexual orientation, marital status, or national origin. Mention or display of trademark, proprietary product or firm in text or figures does not constitute an endorsement by National 4-H Council and does not imply approval to the exclusion of suitable products or firms.

"Rising to the Occasion" is offered to youth through 4-H programs, schools, youth organizations and camps throughout the country. To order a copy of this curriculum, please contact National 4-H Supply at (301) 961-2937, or Internet Address: 4hsupply@fourhcouncil.edu. When ordering please include product number WFP031.

# Fleischmann's® Yeast

### *Fleischmann's Yeast History*

Charles and Maximillian Fleischmann emigrated to the United States form Austria-Hungary to build a new life in 1868. With them they brought the fine art of baking and the family's secret passed down through the generations. They were greatly discouraged by the quality of bread in the United States. Partnering with an American businessman, James Gaff, a respected distiller in Cincinnati, they manufactured a commercial compressed yeast cake that permitted a leavening power unheard of in those days.

*Finally, the modern age of baking arrived.*

Over 13 decades later, Fleischmann's Yeast continues to believe in baking's wholesome goodness. Aside from Active Dry Yeast, the company's expanded line includes RapidRise™ Yeast, Bread Machine Yeast, Fresh Active Yeast, and Bread Machine Mixes.

Fleischmann's Yeast also has a cookbook for bread machines, a toll-free hot-line for product inquiries and troubleshooting, 1-800-777-4959, and a home page, www.breadworld.com, that is bursting with countless tasty recipes, tips and helpful advice.

***Fleischmann's Yeast . . . Helping the American Family Make Great Breads Since 1868.***