



Bake for Family Fun Month Activity

SECOND GRADE ACTIVITY

“Baking History and Traditions”

“Science of Baking”

MATERIALS NEEDED:

- Select one of the suggested books about bread.
- Experiment:
 - Four bowls
 - Measuring spoons, cups and liquid measuring cup
 - Water, active dry yeast, baking powder, baking soda
 - Sugar
- Ingredients for English Muffins:
 - 2 $\frac{3}{4}$ to 3 $\frac{1}{4}$ cups all purpose flour, divided
 - 1 package (1/4-oz.) fast rising yeast
 - 1 tablespoon sugar
 - 1 teaspoon salt
 - 1 $\frac{1}{4}$ cups warm water (115-120 degrees F.)
 - 2 tablespoons butter or cooking oil
 - Cornmeal
 - Cooking spray
 - Cooking oil
- Equipment for English Muffins
 - Griddle
 - Large mixing bowl
 - Spoon
 - Hand mixer, optional
 - Rolling pin
 - Biscuit cutter or round cookie cutter
 - Baking sheet
 - Plastic wrap or clean non-terry baking towels
 - Wire cooling rack

ACTIVITIES:

- Learn what leavening is in baking

- Activate baking powder and ferment yeast to make leavening gas (CO₂)
- Prepare English Muffin dough on a griddle

BAKING ACTIVITY: English Muffins

English Muffins

Makes 12 to 14 muffins

2 $\frac{3}{4}$ to 3 $\frac{1}{4}$ cups all-purpose flour, divided
1 package (1/4-oz.) fast rising yeast
1 tablespoon sugar
1 teaspoon salt
1 $\frac{1}{4}$ cups warm water (115-120 degrees F.)
2 tablespoons butter or cooking oil
Cornmeal

1. In a large mixing bowl, combine 1 $\frac{1}{4}$ cups flour, yeast, sugar and salt; mix well.
2. Add very warm water, and butter or oil to the flour mixture.
3. Blend at a low speed or stir until moistened. Beat on medium speed or by hand for three minutes.
4. Gradually add enough remaining flour to make a firm dough that forms a ball. Place the ball of dough on a lightly floured surface and knead for 5 minutes.
5. Turn the bowl over the dough and let it rest for 10 to 15 minutes. *
6. On a surface sprinkled with cornmeal, roll or flatten the dough until about $\frac{1}{4}$ -inch thick. With a biscuit or cookie cutter, cut into 3 to 4-inch circles.
7. Place muffins on ungreased cookie sheets sprinkled with cornmeal. Cover the muffins with plastic wrap sprayed with cooking spray or a clean damp non-terry kitchen towel. Let the muffins rise for 15 minutes.
8. Preheat a lightly oiled electric griddle or fry pan to 325 degrees F. Bake the muffins for about 8 minutes on each side until deep golden brown. Cool, split and toast or serve with butter and jam.

***Great time to check the leavening experiments or read a bread story!**

Source: Lesaffre/Red Star Yeast

BAKE FOR FAMILY FUN EXPLORATION:

• Science Activity: Leavening

What do you think makes the pancakes, muffins, or bread we eat light?

(Air, gas that's trapped in the batter or dough. The gas that's in the batter or dough is called carbon dioxide (CO₂)—It's the same gas that you breathe out as you exhale.)

How do we get the gas in the batter or bread dough?

(The ingredient in the mixture called "leavening." Leavening may come from (show) baking powder can, baking soda and yeast packages. Eggs in a batter, when beaten, also trap air in a batter.)

Leavening ingredients like baking powder and yeast release bubbles of carbon dioxide gas. These make little pockets (cells) in batter or dough. Each ingredient works in a different way. Let's see how:

Yeast

Yeast is a fungus that when moist and fed with carbohydrate, will grow. As it grows (ferments), it gives off carbon dioxide (CO₂).

Experiment: *Which ingredient or ingredients make bread rise?* Be sure the water is not too hot—105-110 degrees F.

Bowl 1: ½ teaspoon active dry yeast + ¼ cup warm water

Bowl 2: ½ teaspoon active dry yeast + 1 tablespoon flour + ½ teaspoon sugar

Bowl 3: ½ teaspoon active dry yeast + ½ teaspoon sugar + ¼ cup warm water

Mix each set of ingredients and begin to watch for a reaction.

Which one do you think will grow the fastest? Will they all grow? After 5-10 minutes: Which combination fizzes?

A: (Bowl 3)

How do we know that yeast is the active ingredient?

A: (Water sugar and flour did not fizz).

Why did Bowl 3 fizz?

(Because yeast is alive and eats the sugar and oxygen; emits carbon dioxide and alcohol).

Baking powder

1. Baking powder has a double reaction:
2. Moisture starts the reaction of acid (sodium aluminum sulfate) and base (soda) ingredients in the powder
3. When the batter heats, it reacts more
4. Breads made with baking powder are called **quick breads** because the reaction that makes the gas happens as soon as the batter is moist and hot.
5. See how fast the leavening reacts:

Bowl 4: 1 teaspoon baking powder + 1/3 cup very hot water

- Check out the Diving Sub Demo at www.Clabbergirl.com--submarines are available to teachers and educators!
- Try this recipe that uses baking powder - One Egg Muffins. (Recipe is at the end of this family baking lesson)

VOCABULARY:

Fermentation: conversion (chemical change) of carbohydrate to carbon dioxide and alcohol, especially by yeast

Fungus: a group of plants that include mushrooms, yeast and molds.

Leavening: a substance such as yeast or baking powder used in a dough or batter to produce fermentation

Yeast: a fungus capable of fermenting carbohydrates especially used as a leavening.

BOOKS FOR READING TOGETHER:

Bread is for Eating. David and Phyllis Gershator.

The Sleeping Bread. Stefan Czernecki and Timothy Rhodes.

Walter the Baker. Eric Carle.

Lesson Resources

Adventures with Mighty Egg.

American Egg Board. 1993.

A Romance with Baking.

(Historical pictures and recipes about milling and baking.)

Karol Redfern-Hamper. 2000.

Loaves of Fun. A History of

Bread with Activities and

Recipes from Around the

World. Elizabeth Harbison.

1997.

Cooking Wizardry for Kids.

Margaret Kenda and Phyllis

Williams. 1990.

Yeast: Rising Through the

Ages. Fleischmann's Yeast.

1998. Scholastic, Inc.

One-Egg Muffins

Makes 12, 2 ½-inch muffins

Ingredients

2 cups all-purpose flour (you may use half whole wheat flour)

2½ teaspoons baking powder

½ teaspoon salt

1 tablespoon sugar

1 egg, beaten

1 cup milk

¼ cup melted butter or sunflower oil

1. Heat the oven to 400 degrees F.
2. Grease the bottoms of the muffin cups or line with cupcake paper liners.
3. In a large mixing bowl, measure and stir together the flour, baking powder, salt and sugar.
4. In a separate bowl, beat the egg; add the milk and melted butter or oil.
5. Combine the two mixtures, stirring just long enough to moisten all the ingredients. TIP: The batter should be lumpy—do not overmix.
6. Fill lightly greased or paper lined muffin cups ¾ full. Bake 20-25 minutes, until golden.

Options:

1. Sprinkle the tops with a nut crunch topping before baking: Mix ¼ cup packed brown sugar, ¼ cup chopped nuts and ¼ teaspoon cinnamon
2. Stir ½ cup dried cherries, coconut or nuts with the flour.

Source: Clabber Girl Baking Powder