

Leavening

Summary

Experiment with the various types of leavening agents and complete a muffin lab.

Main Core Tie

FCS Exploration

[Strand 7 Standard 1](#)

Time Frame

2 class periods of 45 minutes each

Group Size

Small Groups

Life Skills

Thinking & Reasoning, Communication

Materials

Ingredients for the experiment and lab.

Background for Teachers

LEAVENING EXPERIMENT

1. The effect of liquid on baking soda

½ c. water

1 tsp. baking soda

Place water in a beaker. Add the baking soda to the water. STIR. Top the beaker with a balloon.

Read the ingredients on a baking soda box.

2. The effect of liquid on baking powder

½ c. water

1 tsp. baking powder

Place water in a beaker. Add baking powder to the water. STIR. Top the beaker with a balloon. Read the ingredients on a baking powder can.

3. The effect of liquid on yeast

½ c. water

1 tsp. yeast

Place water in a beaker. Add yeast. Top the beaker with a balloon.

4. The effect of sugar on yeast and liquid

½ c. water

1 tsp. yeast

1 tsp. sugar

Place the water in a beaker. Add the sugar. Stir. Add the yeast. Top the beaker with a balloon. Stir. Have the class do the activity, "Learning about Leavening" and the "Leavening Pyramid." At the end of class, discuss the following information.

Leavening agents make breads rise in the oven so they are light and porous (full of little holes).

Compare the sizes of the balloons. What conclusions can you make about leavening agents and the chemical reactions that take place?

Baking powder is made of baking soda, a dry acidic powder, and cornstarch. The taste of baking

soda alone is quite objectionable, so an acid is added to make the flavor more pleasant.

Is this paragraph correct? Baking powder often contains sodium aluminum sulfate, which is a slow-acting acid. When using baking soda alone in a recipe, an acid such as vinegar, lemon juice, or molasses is added to inhibit the strong baking soda flavor.

Baking powder is often referred to as double acting. This means it works twice--once when first mixed with a liquid such as in the experiment above and again when heated. Baking powder is the leavening agent most often used in quick breads.

Yeast is a living organism which is composed of living yeast plants. It is rich in B vitamins and protein. Yeast needs liquid, food, and a warm temperature to grow new yeast plants and form the gas that lightens the bread and makes it rise. The food used in experiment #3 was sugar. When the sugar was added, the yeast was able to grow more than in experiment #2 because it then had food and moisture to grow new plants.

Yeast is not used in quick breads. It is used in leavened breads, rolls, breakfast cakes, and raised doughnuts.

SUMMARY

1. What is a leavening agent? It makes breads rise so they are light and porous.
2. What are the three main leavening agents? Yeast, baking powder, and baking soda
3. Which leavening agent is most often used in quick breads? Baking powder

Student Prior Knowledge

Basic cooking terminology.

Intended Learning Outcomes

Students will learn the effect of leavening.

Instructional Procedures

Select one of the recipes and have the students make muffins to incorporate the use of leavening.

Authors

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