

Bread in a Bag

Standards of Learning

Science LS.1, LS.12, PS.2

English 6.1, 7.1

Social Studies CE.1

Objective

Students will:

- Learn how processing adds value to agricultural products by making bread in a bag

Materials

- 4 cups flour (try whole wheat for increased nutrition)
- Warm water
- 2 tablespoons sugar
- 1 package of yeast (try quick rise)
- 2 teaspoons of salt
- 1 tablespoon of vegetable oil

Background Knowledge

Nearly all agriculture products must be processed in some way before we can use them. Pork is processed into sausage. Wool is processed into sweaters and its lanolin into hand lotions. Timber is processed into furniture and lumber for construction.

Wheat is processed into bread, rolls, muffins, buns, cereals, crackers, spaghetti, macaroni, cakes, and cookies. Rollers scrape off the outer bran layer and break the endosperm of wheat. It continues through a series of rollers and sifters until it is fine enough for flour, and the bran and germ have been separated. For whole-wheat flour, the bran, and sometimes the germ, remains with the ground endosperm.

After it has been ground into flour, it goes through another stage of processing where it is mixed with other ingredients and baked into bread, other baked goods, or shaped into pasta. Each step of processing adds more value to the final product. For that reason, a product that has been processed is called a value added product. Consumers are willing to pay more for wheat when it is sold as bread than they would if it was sold as wheat kernels.

Procedure

1. In a one-gallon (heavy duty) Ziploc bag, mix:
 - ½ cup of all purpose flour
 - 1 pkg. or 2-1/4 teaspoons of yeast
 - ½ cup warm water
 - 2 tablespoons sugar
2. Close bag and knead with fingers until the ingredients are completely blended.
3. Leave bag closed, with contents in the corner, and let the dough rest 10 minutes.
4. Then add:
 - 2 cups whole wheat flour
 - ¾ cup warm water
 - 1 tablespoon vegetable oil



2 teaspoons salt

5. Mix well. Add enough all-purpose flour to make a stiff dough, about 1 or 1 ½ cups.
6. Close the bag and knead it (you may need to remove some air in the bag).
7. Add more flour until the dough no longer sticks to the bag.
8. Let the dough rest for 5 minutes.
9. Open the bag and allow the dough to fall out onto clean or gloved (food handlers gloves) hands.
10. Spray the hands or gloves with oil so there will be no sticking.
11. Form the dough into a loaf, place in a loaf pan or onto a cafeteria cookie sheet. The dough will grow 1-1/2 times larger, so leave space between loaves if baking on a cookie sheet.
12. Allow to rise 30 (quick rise yeast) to 45 minutes.
13. Bake 30-35 minutes in a 350 degree oven.

Extension

- Research man's use of wheat. (Hint: Ancient Egyptians are believed to be the first to bake leavened bread, but anthropologists speculate that primitive people probably first chewed the raw wheat kernel before they learned to pound it into flour and mix it with water to make porridge.)
- Have students grind wheat kernels to make flour. Measure the amount of flour produced. Compare and contrast how Indians and settlers ground flour and how it is done today.
- Discuss with students the difference between yeast bread and unleavened bread. Can they name other types of bread made with yeast?
- Have students generate a list of products that use wheat.
- Discuss with students the geographic regions in Virginia where wheat is grown.
- Have students sequence the planting and harvesting of wheat.
- Review parts of the wheat plant.
- Have students develop a dictionary of new words (kernel, yeast, leavened, unleavened etc.).
- Discuss the nutrients necessary for plants to grow.

This lesson adapted from Utah AITC.

