

How Gluten Impacts the Properties of Flour

WHAT STUDENTS WILL LEARN

Through this experiment, students will gain a better understanding of the protein gluten, and how its presence or lack thereof impacts the properties of dough.

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WHAT YOU'LL NEED

- ◆ Bread flour
- ◆ All purpose flour
- ◆ Whole wheat pastry flour
- ◆ Gluten free flour
- ◆ Kitchen scale or measuring cup
- ◆ Four bowls
- ◆ Spoon
- ◆ Baking sheet
- ◆ Volumetric flask or cup of water

WHAT YOU'LL DO

1. Measure 150 grams of each flour and place them in four separate bowls.
2. Measure 100 mL of warm water into your volumetric flask or cup. Pour into one of the bowls. Repeat three more times until all bowls of flour contain 100 mL of water.
3. Mix each flour into the water within the bowl by kneading it with your hands until the flour is in the shape of a ball.
4. Place each ball of flour on the baking sheet.
5. Have students predict which balls of dough would rise the most and the least if they were to bake the balls.
6. Knead each ball of dough for 10 minutes. Before kneading you can sprinkle flour on the table so that the surface doesn't get too sticky, but make sure you use the same type of flour that is in the ball of dough.
7. Knead the dough under a stream of cool water about the size of a pencil until the water runs clear. All of the starch should be gone and only the gluten should remain.
8. Stretch and pull on the remaining gluten balls to experience the protein strands.

