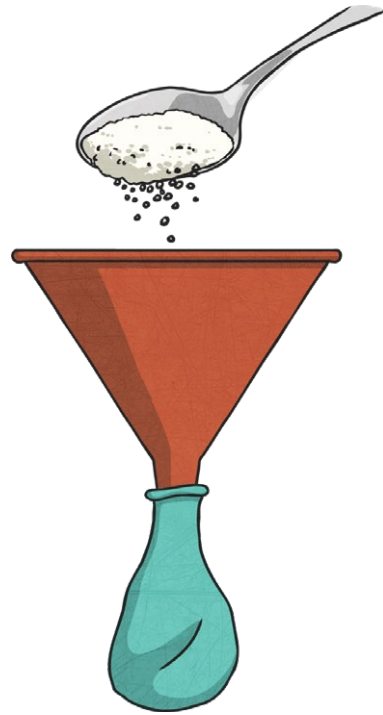


# Yeast Experiment

Yeast is often used in cooking. But did you know this dry cooking ingredient is alive? What conditions make yeast come alive? Find out by following this experiment.

## You Will Need:

- Three plastic bottles
- Three balloons
- Labels or permanent marker
- Funnel
- Tablespoon
- White sugar
- Baking soda
- Measuring cups or jug
- Warm water
- Six packets of dry yeast
- Bowl of warm water or a warm area like windowsill



## Method:

1. Label the bottles 'yeast', 'yeast and sugar' and 'yeast, sugar and baking soda'.
2. Using the funnel, add two tablespoons of sugar to the bottles labeled 'yeast and sugar' and 'yeast, sugar and baking soda'.
3. Add two tablespoons of baking soda to the bottle labeled 'yeast, sugar and baking soda'.
4. Use the measuring cups or jug and the funnel to add two  $\frac{1}{2}$  cups of warm water into each bottle.
5. Empty two packets of yeast into each bottle and gently swirl the bottles to mix everything together.
6. Stretch the neck of a balloon over the mouth of each bottle.
7. Next place the bottles in a warm area like a windowsill or in a bowl of warm water.
8. Now, observe as some of the yeast mixtures will begin to froth and the balloons may inflate. You can take photographs of the balloons and bottles every minute or so to record your observations.

## Explanation

Yeasts are tiny microscopic organisms, or micro-organisms that people often use to make bread rise or alcohol, especially beer. Yeasts help in the bread making process because of what they eat and turn their food into. They feed on sugars and starches and then they turn this food into energy which releases carbon dioxide gas. This fermentation process helps make a slice of bread soft and spongy.

In this experiment the fermentation process has meant the yeast has eaten the sugar turning it into energy. This has created carbon dioxide gas which was captured by the balloons.

Notice that the bottle labeled 'yeast' had no sugar and the balloon didn't inflate. That is because the yeast didn't have any food to consume. In the bottle labelled 'yeast and sugar' the yeast made a lot of carbon dioxide, so the balloon should have inflated. The bottle with baking soda should have a balloon filled with a little less carbon dioxide. The baking soda changed the pH levels (which measures how acidic or alkaline a substance is) in the bottle, making the environment less ideal for the yeast.

## Extra ideas:

- Use different sized containers.
- Use different temperature water.
- Use other combination such as honey, lollies or cordial.

## Can You Answer?

What happens to the balloon during the reaction?

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What is the name of the gas that is being produced?

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What are two products in which yeast is used as an ingredient?

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How does yeast act as a raising agent when making bread?

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