

Topic: Food: Kitchen chemistry

Blow up a balloon with yeast

<http://www.sciencebob.com/experiments/yeast.php>

You will need

- A packet of yeast (available in the grocery store)
- A small, clean, clear, plastic soda bottle (16 oz. or smaller)
- 1 teaspoon of sugar
- Some warm water
- A small balloon

What to do

1. Fill the bottle up with about one inch of warm water. (When yeast is cold or dry the micro organisms are resting.)
2. Add all of the yeast in the packet and gently swirl the bottle a few seconds. (As the yeast dissolves, it becomes active - it comes to life! Don't bother looking for movement - yeast is a microscopic fungus organism.)
3. Add the sugar and swirl it around some more. Like people, yeast needs energy (food) to be active, so we will give it sugar. Now the yeast is "eating!"
4. Blow up the balloon a few times to stretch it out then place the neck of the balloon over the neck of the bottle.
5. Let the bottle sit in a warm place for about 20 minutes. If all goes well the balloon will begin to inflate!

How does it work?

As the yeast eats the sugar, it releases a gas called carbon dioxide. The gas fills the bottle and then fills the balloon as more gas is created. We all know that there are "holes" in bread, but how are they made? The answer sounds a little like the plot of a horror movie. Most breads are made using YEAST. Believe it or not, yeast is actually living microorganisms! When bread is made, the yeast becomes spread out in flour. Each bit of yeast makes tiny gas bubbles and that puts millions of bubbles (holes) in our bread before it gets baked. Naturalist's note - The yeast used in this experiment are the related species and strains of *Saccharomyces cerevisiae*. (I'm sure you were wondering about that.) Anyway, when the bread gets baked in the oven, the yeast dies and leaves all those bubbles (holes) in the bread. Yum.

Make it an experiment

The project above is a DEMONSTRATION. To make it a true experiment, you can try to answer these questions:

1. Does room temperature affect how much gas is created by the yeast?
2. Does the size of the container affect how much gas is created?
3. What water/room temperature helps the yeast create the most gas?
4. What "yeast food" helps the yeast create the most gas? (try sugar, syrup, honey, etc.)



Doing a science experiment with year 6. Warm water, sugar and yeast. The gas is blowing up our balloons!!!!

