



# Baggie Reactions

Puff up sandwich baggies using simple chemical reactions!

Activity Guide

## Try This!

### Carbon dioxide

1. Put 1 teaspoon of baking soda into a baggie.
2. Shake the baggie so the baking soda settles into one corner.
3. Fill a pipette with vinegar. Don't squeeze it out!
4. Place the full pipette inside the baggie, with the stem facing the baking soda.
5. Gently pat the baggie to get out as much air as possible.
6. Seal the baggie.
7. Wait until everyone is ready.
8. Squeeze the bulb of the pipette to start the reaction!



Kids should see bubbles and hear a fizzing sound right away. After awhile, they should notice that the bag has inflated and that the contents feel cold.

### Oxygen

1. Put  $\frac{1}{4}$  teaspoon yeast into a baggie.
2. Shake the baggie so the yeast all settles into one corner.
3. Fill a pipette with hydrogen peroxide. Don't squeeze it out!
4. Place the full pipette inside the baggie, with the stem facing the yeast.
5. Gently pat the baggie to get out as much air as possible.
6. Seal the baggie.
7. Wait until everyone is ready.
8. Squeeze the bulb of the pipette to start the reaction!



Kids should see bubbles and hear a fizzing sound right away. After awhile, they should notice that the bag has inflated and that the contents feel hot.

## What's Going On?

Carbon dioxide can be generated from baking soda and vinegar. This kind of reaction is called an *endothermic* reaction. It takes in heat, so the baggie feels cold. *Endo* means "in."

Oxygen can be made from hydrogen peroxide and living cells (in this case, yeast). This kind of chemical reaction is called an *exothermic* reaction. It gives off heat, so it feels hot. *Exo* means "out."

**Endo** means "in," as in **endothermic**.

**Exo** means "out," as in **exothermic**.

## Learning Objectives

- Gases can be a product of a chemical reaction.
- Some chemical reactions are exothermic (give off heat) and some are endothermic (take in heat).

## Materials

- Measuring teaspoon
- Zipper sandwich baggies
- Jumbo (15 ml) transfer pipettes
- Yeast
- Baking soda
- Vinegar
- 6% hydrogen peroxide (sold as “20 volume developer” at beauty supply stores)



### Credits

This project is made possible by a grant from the Camille and Henry Dreyfus Special Grant Program in the Chemical Sciences. Copyright 2011, Sciencenter, Ithaca, NY.

