



Super Science Connections: A Seltzer Balloon

What happens when a seltzer tablet and water are mixed in a bottle with a balloon attached?

This activity is intended for children entering grades K-4 in the next school year. To carry it out safely there must be a responsible older person to prepare materials, read directions aloud, and supervise the activity. This could be a parent, guardian, or older sibling. The supervisor should do the preparation steps and consult the science background information on the last page before leading children through the activity. Page 3 provides prompts and a place to write predictions and observations from the activity.

Materials

- 1 small plastic bottle such as a travel size shampoo.
- 1 cup (236mL) of water.
- Balloon with mouth that fits tightly to the top of the bottle.
- 3 tablets of a seltzer antacid (one brand is Alka-seltzer™; other brands will work).

Preparation

- Before beginning, make a copy of the worksheet on page 3 for each participant.
- Explain to participants this is an extension of the *Fizzy or Not Fizzy* activity to show what happens when a gas is generated but cannot escape into the air.

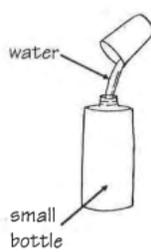
Directions

1. The supervisor should blow up the balloon to show that when air from the lungs goes into the balloon, the balloon expands. Then let the air out of the balloon.

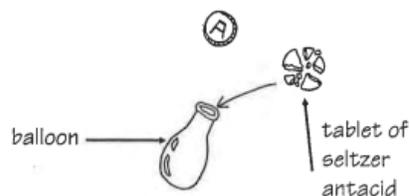
This activity is courtesy of ICE, the Institute for Chemical Education at UW-Madison's Chemistry Department. It is adapted for use at home from A Seltzer Balloon in the Super Science Connections Section 3: Pressure activities offered by ICE at this link:

http://ice.chem.wisc.edu/sites/ice.chem.wisc.edu/files/images/Publications/SSC/SSC_Pressure.pdf

2. Fill the small plastic bottle $\frac{1}{2}$ to $\frac{3}{4}$ full of water.
3. Break one seltzer tablet into pieces small enough to fit through the neck of the bottle.
4. Place the pieces into the balloon.



Step 2



Steps 3 and 4.

5. Carefully put the balloon mouth over the mouth of the bottle. Make sure that the pieces of the tablet remain in the balloon and don't fall into the bottle.



Step 5



Step 7

6. Discuss what participants think will happen when the balloon is lifted, and pieces of seltzer tablet go into the water.
7. Lift the balloon so that the pieces of tablet go into the water.
8. Discuss the observations made during the experiment.
9. Discuss what participants think will happen when two seltzer tablets are used in the experiment. Try it and find out!

Record Your Predictions and Observations!

This is what we think will happen when we lift the balloon so that the tablet goes into the water:

This is what happened when we lifted the balloon and the tablet fell into the water:

What made the balloon blow up?

Names of the scientists:

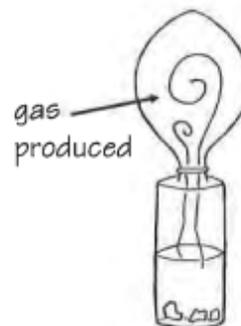
Science Background

Discussion questions (with answers):

- What do you think will happen when the water and tablet mix? (The balloon will expand)
- What do you think will happen when two seltzer tablets are used in the experiment? Try it and find out! (The balloon expands more)

The same reaction occurs as described in *Fizzy or Not Fizzy*. (You can refer to that activity's Science Background section for more details.) This time, however, the gas that is produced is trapped inside the balloon instead of escaping into the air. This trapped gas builds up pressure. The balloon expands because of the increase in pressure from the gas inside the balloon.

When the two tablets are used, twice as much gas is produced. This is because the two inches of water in the bottom of the bottle is more than enough to react with both tablets.



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