

# It's A Gas! 1 of 2

**C**hemical reactions happen when some substances are mixed together. There are toys that use chemical reactions to make them go—like toy rockets that blast into the air and the Hot Wheels “Formula Fuelers” cars. Chemical reactions sometimes make products that we cannot see. If we cannot see them we can still find ways to show that they are there. When an effervescent antacid tablet is dropped into water, a gas is produced, but we do not see the gas in the air. Instead, we see the gas in the form of bubbles in the water. In this activity you will use a balloon to help you show that gas is made when an antacid tablet is put into water.

## Materials

- D Empty 4 oz. plastic bottle, clean
- D Water
- D Effervescent antacid tablet
- D Paper towel
- D Latex balloon (about 30 cm or 12 inches inflated diameter)
- D Clock or timer

NOTE: It is helpful to blow the balloon up and let the air out a few times before using the balloon in the

activity. This will allow the walls of the balloon to more easily expand to show the presence of the gas. It is also helpful to practice putting the balloon over the top of the empty bottle before conducting the activity.

*The activity can be conducted by placing some small pieces of antacid tablet directly into the balloon before pulling the balloon over top of the bottle. When the balloon is securely on top, the balloon can be moved so that the antacid falls into the liquid. Balloons should be disposed of immediately after use.*

*Be sure to follow Milli's Safety Tips and do this activity with an adult! Do not eat or drink any of the materials in this activity.*

## Procedure

1. Fill the plastic bottle half way with water.
2. Break one effervescent antacid tablet into several pieces over a paper towel. Carefully place the pieces of the tablet into the water.
3. Hold the bottle steady while

your adult partner quickly pulls the opening of the balloon over the mouth of the bottle.

4. Look at the balloon once it is on the bottle so you can later draw a picture of it in the “What Did You Observe?” section.

5. Use the clock or timer and watch the balloon to see what happens in one minute's time (your adult partner may help with the timing so that you can watch the balloon).

6. After one minute has passed, remove the balloon from the bottle by pinching the neck of the balloon and gently pulling it off the mouth of the bottle. Slowly release the air from the balloon. Note: If at any time, you or your adult partner notices the balloon has gotten too big, remove it from the bottle.

7. Draw a picture of the balloon just after you put it in the bottle and one after a minute has passed in the “What Did You Observe?” section.

8. Pour the liquids down the drain and throw away the balloon and other materials. Thoroughly clean the work area and wash

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your hands.

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## Where's the Chemistry?

Effervescent antacid tablets contain an acid, similar to vinegar or lemon juice, and a base, similar to baking soda. When the acid and base are dry like they are in the tablet, they do not react. When they dissolve in the water, they react to produce carbon dioxide gas. You cannot see this gas, but you can show that it is there by collecting it in the balloon.

## Try this...

See what happens if you use more or less water to conduct the experiment. Also compare to see if there is a difference when warm water is used versus room temperature or cold water.

## What Did You Observe?

Draw a picture of the balloon right after being placed on the bottle:

Draw a picture of the balloon after one minute has elapsed: