

# Let's Investigate!

# HANDS-ON SCIENCE



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# Huff and Puff

## Let's Find Out

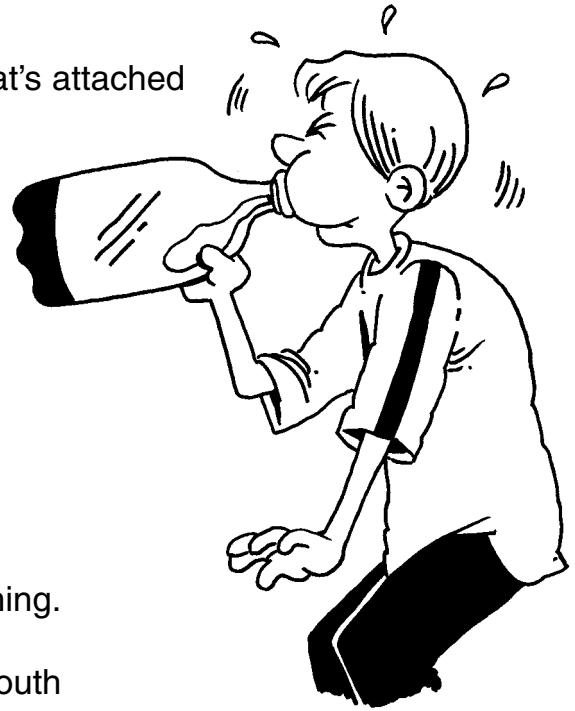
What happens when you try to blow up a balloon that's attached to the mouth of a bottle?

## What You'll Need

- 2-liter plastic soda bottle
- balloon
- pen

## What to Do

1. Push most of the balloon inside the bottle. Then stretch its neck back over the bottle's opening. Hold the bottle in your hands.
2. Try to blow up the balloon by blowing into the mouth of the bottle. See what happens to the balloon.
3. Lay the bottle sideways on a table or countertop. Ask a friend to hold the bottle while you use a pen to punch a small hole near the bottom of it.
4. Try to blow up the balloon again. See what happens.
5. Put your hand near the hole you made, and try blowing up the balloon again. See if you feel anything near the hole.



## What You Saw

What happened when you tried to blow up the balloon the first time?

What happened when you tried to blow it up after you punched a hole in the bottle?

What did you feel when you put your hand near the hole and blew into the balloon?

Write your answers on your record sheet.

## Think About It

What is inside the bottle besides the balloon you inserted?

Why do you think making a hole in the bottle affected what happened to the balloon?

Write your answers on your record sheet.

Name \_\_\_\_\_

Air

# Huff and Puff

## Let's Find Out

What happens when you try to blow up a balloon that's attached to the mouth of a bottle?

## What You Saw

What happened the first time you tried to blow up the balloon?

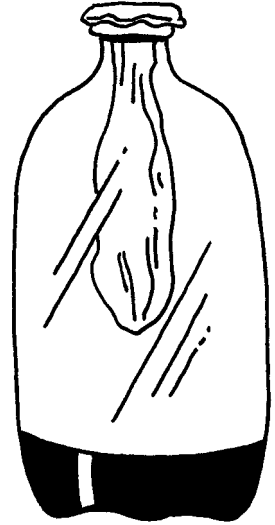
\_\_\_\_\_

What happened when you tried to blow up the balloon after you punched a hole in the bottle?

\_\_\_\_\_

What did you feel when you put your hand near the hole and blew into the balloon?

\_\_\_\_\_



## Think About It

What is inside the bottle besides the balloon you inserted?

\_\_\_\_\_

Why do you think making a hole in the bottle affected the results you got?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Did You Know?

Long ago, scientists couldn't test their ideas about air because they had no proper instruments. People first started making scientific studies about air in the 1500's. They discovered that air had weight and took up space.

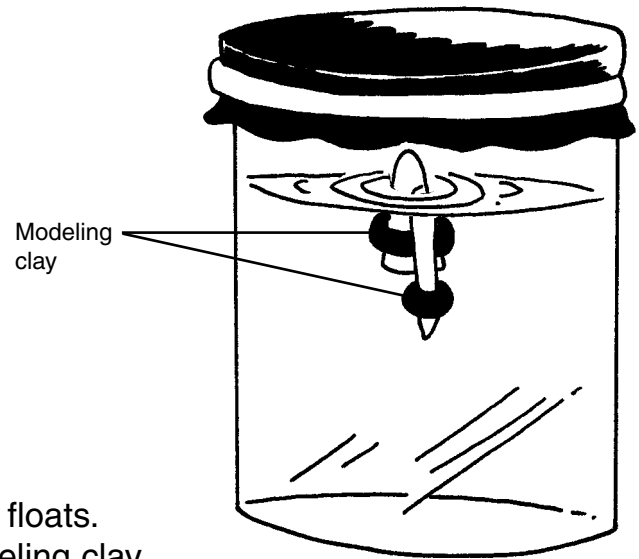
# A Diving Toy

## Let's Find Out

How can you use air pressure to make a diving toy that sinks and rises?

## What You'll Need

- tall glass jar
- balloon
- rubber band
- scissors
- plastic pen top that floats
- modeling clay
- water



## What to Do

1. Fill the jar close to the top with water.
2. Put the pen top in the water to make sure it floats. Take out the pen top and add a ring of modeling clay around the bottom of it to make it heavier. Put the pen top in the water again. It should still float, but it should be heavy enough to look as if it is about to sink. Add or take away some clay as necessary.
3. Cut off the end of the balloon. Stretch it tightly across the mouth of the jar. Ask a friend to wrap the rubber band around the balloon to hold it in place.
4. Put your fingers on top of the balloon lid and press down. Watch the pen top.
5. Release your fingers from the balloon. Watch what happens to the pen top.

## What You Saw

What happened when you pressed down on the balloon?  
What happened when you took your fingers off the balloon?  
Write your answers on your record sheet.

## Think About It

When you placed the pen top in the water, air was trapped inside it. When you pressed down on the balloon lid, this air got compressed (squeezed). What happened that allowed the pen top to sink? Write your answer on your record sheet.