

CURIOSITY AT HOME

UNDER PRESSURE



While air is hard to see, the effects of air and air pressure are all around us.

MATERIALS

- 1 Sheet of paper
- Scissors (optional)

PROCEDURE

- Take a sheet of paper and cut or tear off a strip about an inch wide and at least 5 inches long.
- Place the inch-wide edge just under your bottom lip.
- Blow slowly along the top of the paper.

What do you observe?

What happens if you blow air faster? Slower?

What's Happening?

The fast-moving air across the top of the paper has less pressure than the slow-moving air underneath. Since the slow-moving air has more pressure, it pushes the piece of paper up.

Now, let's explore air pressure a bit more.

Experiment continued on next page...



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MATERIALS

- Empty bottle such as a water or soda bottle
- Paper

PROCEDURE

- Place an empty bottle on a table or counter horizontally
- Wad up a piece of paper into a ball about half the size of the mouth of the bottle.
- Place the ball of paper into the mouth of the bottle so there is space around the top and sides of the ball of paper. It should fill at least half of the bottle opening.
- Blow the ball of paper into the bottle.

K-2 EXPLORATION

Here are some questions you can explore together.

- What do you think is going to happen to the wad of paper when you blow into the bottle?
- What did you observe?
- Although all the water is gone from the bottle, is the bottle empty?
- If you place the bottle on the counter standing up, can you put the ball of paper in the bottle?
- What happens to the air inside the bottle when we try to put the ball of paper in the bottle when it is standing? What happens to the air inside the bottle when we blow into it while it is laying down?

Experiment continued on next page...



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3–5 EXPLORATION

- Before you try this experiment, draw the approximate size of your ball of paper and record your prediction in the chart below or in a science journal.
- What happened? Record your observations in the chart below or in a science journal.
- Try this again with larger or smaller balls of paper. Each time, make a prediction and then record your observations.

| Drawing of paper ball size | Prediction | Observations |
|----------------------------|------------|--------------|
| | | |
| | | |
| | | |

- Do you get the same results if you make the ball of paper larger or smaller?
- What do you think is happening?

Experiment continued on next page...



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GRADE 6–8 EXPLORATION

- Before you try this experiment, draw the approximate size of your ball of paper and record your prediction in the chart below or in a science journal.
- What happened? Record your observations in the chart below or in a science journal.
- Try this again with larger or smaller balls of paper. Each time, make a prediction and then record your observations.

| Drawing of paper ball size | Prediction | Observations | |
|----------------------------|------------|----------------|--------------|
| | | Blowing slowly | Blowing fast |
| | | | |
| | | | |
| | | | |

- Do your results change when you blow into the bottle faster or slower?
- Draw a model of your experiment. Label the areas of high pressure and low pressure.
- What keeps the ball of paper from entering the bottle?
- Why does the ball of paper sometimes fly out of the mouth of the bottle? What is the relationship between the size of the ball of paper and air pressure?



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