

MONSTER SCIENCES

Making science fun!

AN EXPERIMENT ABOUT

AIR

BENDY AIR TRICK



What you will need:

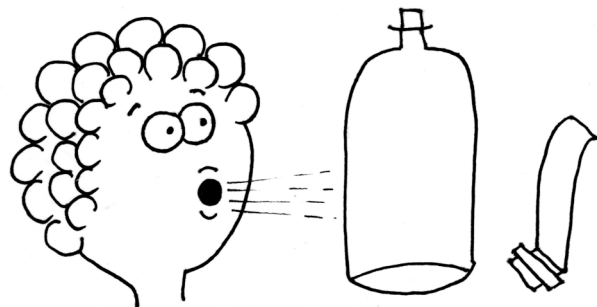
- A strip of paper about 2 cm (1 inch) wide and about 10 cm (4 inches) long
- Sticky tape
- A book
- A round plastic bottle
- Water

What you will do:

- 1 Fold the strip of paper 2 cm (1 inch) from one end.
- 2 Tape the paper to the table using the small fold so the longer strip stands up from the table.
- 3 Place the book on the table so that it is standing up between you and the paper, about 5 cm (2 inches) from the paper.
- 4 Blow on the book. **DID THE PAPER MOVE? TRY BLOWING HARDER AND SOFTER. DOES IT MAKE ANY DIFFERENCE?**
- 5 Fill the bottle with water so that it doesn't blow over. Now replace the book with the bottle.
- 6 Try blowing again. Remember to try blowing harder and softer. **WHAT DO YOU NOTICE?**

What is going on?

When you blow onto the book the large flat surface deflects the air away at right angles. The curved surfaces of the bottle, however, enable the air to bend around the bottle. If you get the air pressure just right it can go all the way around the bottle and onto the paper.



Monster Challenges:

- Try getting closer or further from the bottle. Can you find the perfect spot to make the paper flutter?
- Investigate aerodynamics. Explain how it is used to make cars, boats and planes more efficient.

TEACHING NOTES:

Monster Sciences Experiment: Air A12

Topic: Air

Suitable for Ages: 8 -12+

Key Concepts:

Air can be bent around smooth curved surfaces.

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Air A12– one copy per student
- Strips of paper, tape, books, round plastic bottles, water

Lesson Notes:

Ask the class to describe how air moves. Discuss the wind and other ways to move air like fans and blowing. Can air blow through things? If so, what sorts of things (eg sieve or something with holes in it). Can air blow around corners?

Remind students to listen carefully to instructions, and to OBSERVE their experiment.

As a class discuss the experiment prior to undertaking it, and students should complete the sections of their Investigation Report IR01 from "Title to "Hypothesis".

What should happen in this experiment, and why?

When the students blow onto the book the flat surface will deflect the air away at right angles and some may even bounce back directly toward them. When they blow on the bottle however the curved surface allows some of the air to bend around the bottle. When the speed of the air is just right it should flutter the paper behind the bottle.

Remember that the best way for students to learn is to try things for themselves, so pose the challenges and let them experiment. They may surprise you with their answers and observations!

Follow up discussion questions:

- How could we make this seem like a magic trick?
- What other things could you use to do this trick? What would make them work?
- Can you imagine how the air would move around the bottle if you were running around holding it above your head? What about how it might move around you when you are running?
- When would it be important to know how wind bends around an object?