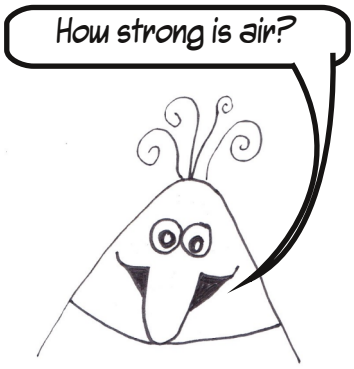
Monster Sciences **Making science fun!**

An experiment about



AIR

Air Lift

What you will need:

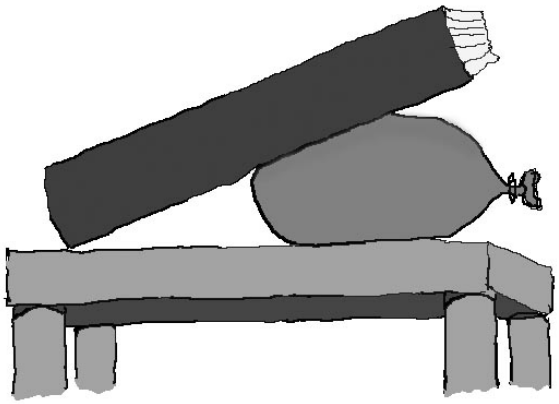
- A balloon
- A book

What you will do:

1 Put the balloon on your desk with the mouth of it hanging over the edge.
2 Lie the book down on the desk so that it is covering about half of the round part of the balloon.
3 Kneel beside the table and start to blow up the the balloon. BE CAREFUL NOT TO PULL THE BALLOON OUT FROM UNDER THE BOOK!
4. Watch what happens to the book.

What is going on?

Air is all around us, and we all know that as it is it can't hold up a book, but air under pressure can be very powerful! By capturing the air inside the balloon and forcing more and more air inside by blowing in it, we are increasing the air pressure inside the balloon. As the pressure increases the air becomes stronger.



Monster Challenges:

- What would happen if you used a different shaped balloon? Perhaps a long thin balloon. Try it and find out.
- Work with a friend to see if you can use 2 balloons at the same time to lift a book and keep it perfectly flat and level all the way up.
- How many books can you lift in this way? Be careful they don't slide off the table!
- What does *pneumatic* mean?

TEACHING NOTES:

Monster Sciences Experiment: Air A06

Topic: Air

Suitable for Ages: 8 -12+

Key Concepts:

Air pressure

Resources:

• Investigation Record IR01– one copy per student
• Experiment Description Air A06– one copy per student
• A round balloon per student, a book each, a collection of different shaped balloons for fast finishers to experiment with

Lesson Notes:

This is a lovely simple experiment that takes very little preperation but gives students plenty opportunity for independent investigation.

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 into the balloon the end of the book on top of the balloon should rise off the table.

In order for fast finishers to get the book to remain level they will both need to blow into their balloons (one under each end of the book) at the same time.

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 question:

• Now that you know how powerful air can be under pressure, what other uses for it can you think of? *(eg air tools such as the "rattle guns" used to undo and do up the wheel nuts in cars, nail hammers and hundreds of other tools; the mechanism in many lifting devices such as car hoists and cherry pickers)*
• What do you know that is kind of like a balloon and needs the correct air pressure to do it's job? Hint - it has something to do with transport and can be found on cars, bikes and aeroplanes. *(tyres - continue the discussion to include what happens if there is not enough or too much air)*
• What could you invent that uses air pressure to operate it? Perhaps a kind of toy?