

Flying Counters

Experiment:

To lift a counter by blowing air over it!

Materials:

You will need:

- Counters
- Saucer/Plate
- Lots of air!



Method:

1. Put the counter on to a table and the saucer a little way from it.
2. Blow air over the top of the counter and see if you can make it 'fly' into the saucer.

Result:

The Counter rises and falls into the saucer (if we were lucky - our aim was not too great!!)

Conclusion:

The counter rises into the saucer because your breath blowing at speed over the top of the counter is going at lower pressure than the air under the counter. The slower moving air (at higher pressure) lifts the counter into the air.



Under Pressure

Experiment:

To show that by lowering air pressure, you can make two pieces of paper come together.

Materials:

You will need:

- Two strips of paper - about 15cm long
- Your mouth - and lots of puff!

Method:

What you have to do:

1. Get your two strips of paper and hold them either side of your mouth.
2. Blow through the strips of paper and see what happens.

Result:

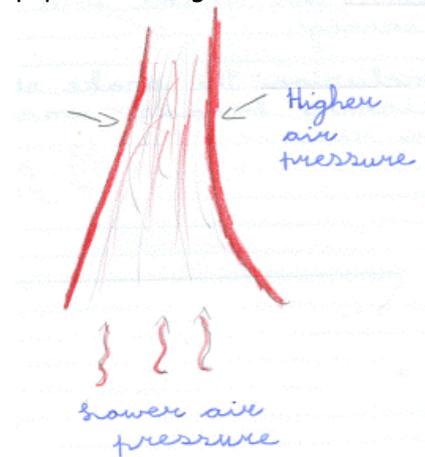
The strips of paper will come together, instead of blowing apart.

Conclusion:

By blowing air through the centre of the paper you are creating a lower pressure. Therefore the higher pressure outside the paper pushes them together.

AND NOW:

Try this: Take one strip of paper and hold it against your bottom lip. The paper should be hanging in front of your chin - long ways. Blow very hard and note what happens. Yes, it should rise - the lower pressure air (or faster moving air) is moving across the top of the paper. Therefore the air under the paper is at higher pressure and it forces the paper to lift. This is the principle behind flight - so next time you are in an airplane, think about it!!



Make your own airplanes

Experiment:

To take a look at flight in action - by making some paper airplanes.

Materials:

You will need:

- Some A4 paper
- Paperclips, Blu-tack, etc. (for extra weight)

Method:

This is quite a simple experiment really. We made a number of the paper airplanes that can be found on Alex's Paper Airplane website and tested them in different ways to make them fly better. The photos here are some helicopters.

We made large ones and some very small ones to see which had the quickest spin.

We also made a few very aerodynamic planes - built for speed - and others that were built to glide gracefully (!).



Pressure Matters

Experiment:

To examine Daniel Bernoulli's Principle.

Materials:

You will need:

- Straw
- Two Ping Pong Balls
- Lots of air!

Method:

1. Place two ping pong balls a little apart on a table.
2. Using a straw, blow lightly in between the balls and watch what happens.

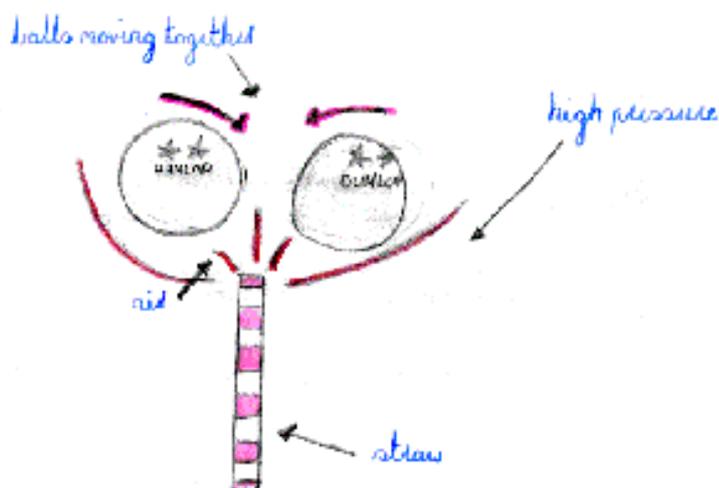
Result:

The balls come together.

Conclusion:

The ping pong balls come together because the moving air (which you blow through the straw) creates low pressure - moving air is at a lower pressure than still air, which is higher pressure. Think of a weather map. Air pressure can tell us about what kind of weather to expect. If a high pressure system is on its way, often you can expect cooler temperatures and clear skies. If a low pressure system is coming, then look for warmer weather, storms and rain. The ping pong balls come together because the stiller air outside of the balls exerts a higher pressure than the moving air between them. The higher pressure pushes the balls together.

BALLS PUSH TOGETHER



Bernoulli's Principal

Experiment:

As with experiment 4, to examine Bernoulli's Principal - this time by suspending a ping pong ball on a cushion of air.

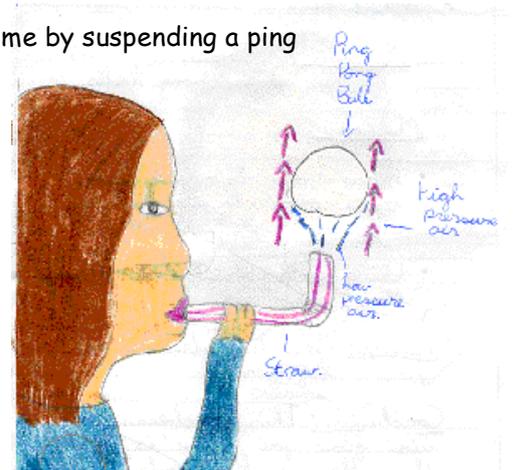
Materials:

You will need:

- Straw and/or hair dryer
- Ping Pong Ball
- Lots of air!

Method:

1. Bend your straw at the bendy part.
2. With the end of your straw in your mouth, get your ping pong ball and hold it just above your straw.
3. Blow really hard into the straw and let go of the ball. Be careful to hold the straw steady while blowing (or the ping pong ball will topple off!).
4. Now try the same experiment using a hair dryer. Try suspending two balls at the one time in the stream of air.



Result:

The ball appears as if suspended on a cushion of air.

Conclusion:

This is another example of Bernoulli's Principal in action. When you blow through a straw or turn on a hair dryer, the air moves fastest in the centre of the stream of air. This air is therefore at a lower atmospheric pressure than elsewhere in the air stream. This low pressure air is surrounded by slower moving air, or air moving at a higher pressure. The ping pong ball is therefore surrounded by higher pressure and this makes a virtual cage, trapping our ping pong ball.

[Build your own Paper Planes](#)

These experiments simply involved a little paper airplane making.

Firstly, we made a spinning blimp and the best way to show this is to refer you to the following excellent website. Just click here.

The second paper plane came from this super website. We found this plane particularly good, because we could add flaps to the wings and it behaved just as a proper airplane should. After tweaking the planes and practicing flying techniques, we had a flying competition. Click here to build your own planes.

Other great paper airplane sites to visit are:

1. [Alex's Paper Airplanes](#)
2. [Joseph Palmer's Paper Airplanes](#)
3. [Best Paper Airplanes](#)
4. [Sabretooth Paper Plane](#)