

# 1. Paper Blowing Showing Lift

## What you need:

- Paper cut 20cm by 10cm
- Puff from you
- Hair dryer

## Instructions:



1

Cut out a piece of paper 20cm by 10cm.



2

Hold the paper just below your bottom lip.



3

Blow across the top of the paper and watch.

4

Get your puff back and repeat.

5

Try this now with a hair dryer.

## Results:

Can you see or notice the changes that happen to the piece of paper?

How long can you keep the paper up? What happens when the air runs out?

Does this happen the same with the hair dryer, hold it above the paper?

WHY do you think it is doing this?

Check out these results...



# 2. Toilet Paper Blowing Showing Lift

## What you need:

- Roll of toilet paper
- Leaf blower

## Instructions:

1

Put a roll or 2 of toilet paper on a piece of wood or broom handle.

2

Get a leaf blower and aim it across the top of the toilet roll.

3

Pull the trigger and watch what happens.



This takes the same experiment onto a larger scale

## Results:

Watch and record what happens.

Why do you think it is doing this?

Check out these crazy results.....



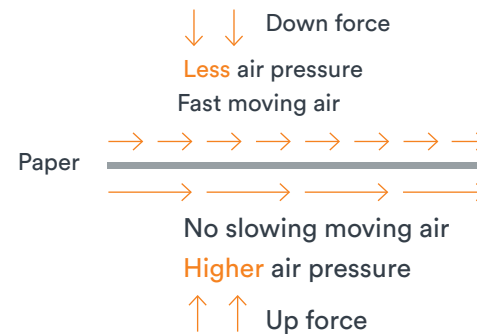
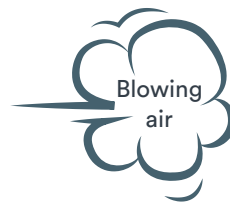
# 2. Toilet Paper Blowing Showing Lift

## The Science Behind it:

Bernoulli's principle simply explains that as air moves around an object, it creates different pressures on that object. Faster air means less pressure. Slower air means more pressure.

According to Bernoulli's principle, this faster moving air on the top of the paper has a lower pressure than the non-moving air on the bottom. This means there is a greater air pressure on the bottom of the paper, creating a greater upward force. This upward force is called lift.

This means when you blow the paper, the air on the top is moving faster than the still air underneath, this creates a higher air pressure on the top of the paper and a lower pressure underneath. This lower pressure creates an upward force called lift and moves the paper up. The same science applies to the toilet paper, it just keeps on rolling as the leaf blower keeps on blowing and looks really effective.



### Bernoulli principle

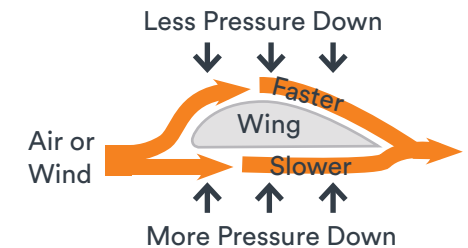
The name comes from the scientist Daniel Bernoulli. He was a Swiss mathematician and physicist in the 18th Century.

This principle helps explain that an aircraft can achieve lift because of the shape of its wings.

They are shaped in an

aerofoil shape (a bulge on top) so that air flows faster over the top of the wing and slower underneath.

Fast moving air equals low air pressure, while slow moving air equals high air pressure. The high air pressure underneath the wings will therefore push or lift the aircraft up.



## Act Like a Scientist:

Good scientists like to ask and explore and ask more questions!

Repeat this experiment and watch. Make sure you think what about will happen before you try these other ideas.

- This experiment can also work with a straw. Try it, will it work the same?
- Does it change with warm air?

# 1. Ping Pong Ball showing Lift

## What you need:



- Ping Pong Ball
- Hair Dryer

## Instructions:



1

Turn a Hair Dryer on Low

2

Slowly place a Ping Pong ball on top

3

Once the ball is in position tilt the hair dryer.

4

It looks like the ball is levitating (hovering in the air).

## Results:

Can you feel the ball take position?

Observe what happens when you tilt the hair drier?

Can you turn the hair drier up to a higher speed?

WHY do you think it is doing this?

Check out my results...

# 1. Leaf Blower and Netball



This takes the same experiment onto a **larger** scale

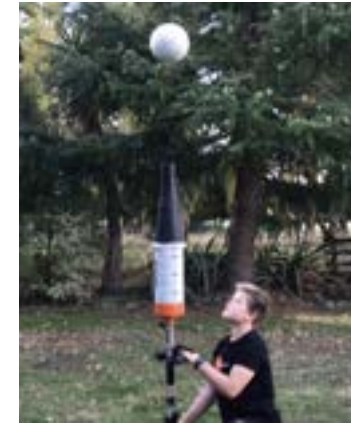
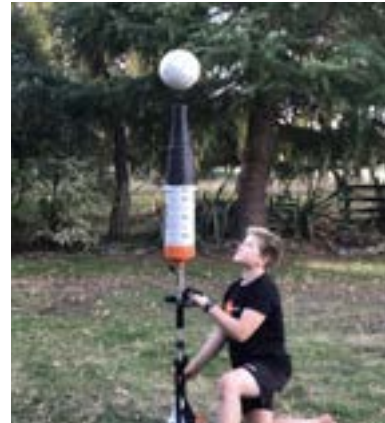
## What you need:



## Instructions:

1

Place the ball on top of the leaf blower on the end of the tube before pulling the trigger.



2

Squeeze the trigger so the air rushes out.

3

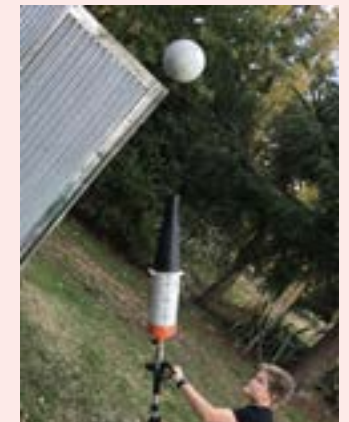
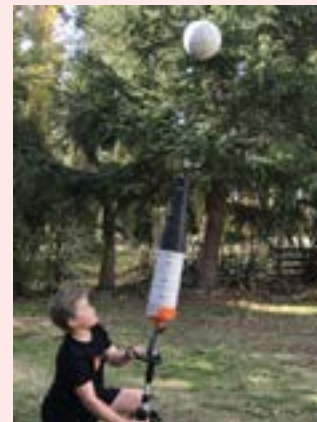
Observe what happens.

4

Can you put the leaf blower out at an angle.

## Results:

Observe and record what happens. **Why** do you think it is doing this?



# 1. Leaf Blower and Netball

## The Science Behind it:

The air from the hair drier and leaf blower produces the levitating ball phenomenon (hovering ball) using Bernoulli's Principle.

The fast air moving that you are blowing from the hair drier or leaf blower moves faster around the curved sides of the ball and is therefore at a lower air pressure than the surrounding, stationary air.

If you look closely, you'll see that the ball wobbles while it is levitating midair. The ball is attempting to leave the area of low pressure, but the higher air pressure from the slower air surrounding it forces it back into the low pressure area thus holding the ball in the air column.

When you tilt the hair drier or leaf blower the ball is held in this air column until gravity becomes the greater force and it falls to the ground.

### Bernoulli principle

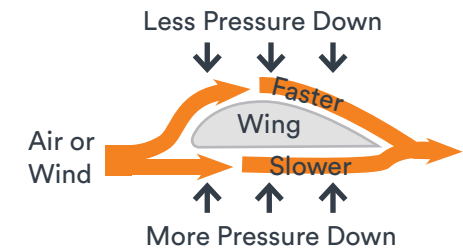
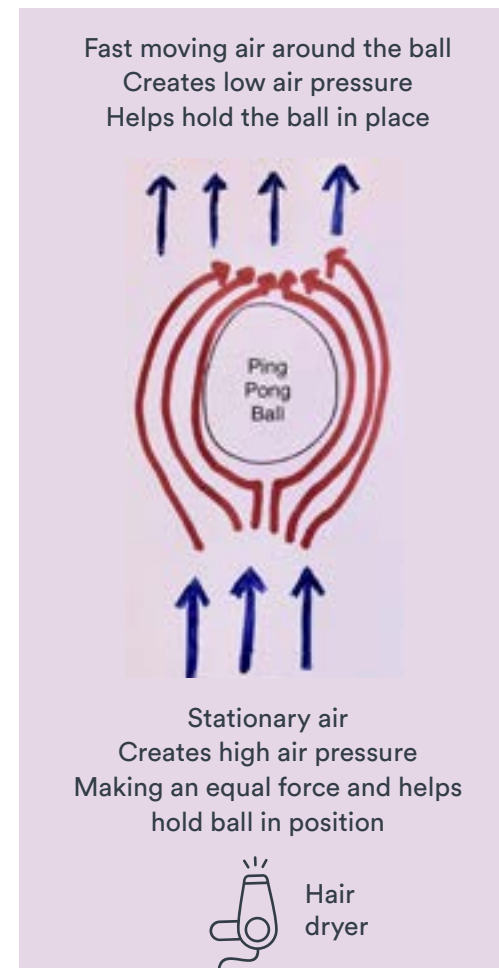
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## Act Like a Scientist:

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Repeat this experiment and observe

- What would happen if you used a smaller ball?
- What happens with warm air from a hair drier vs cool air?
- How much of a tilt can you create using different speeds of air flow?