

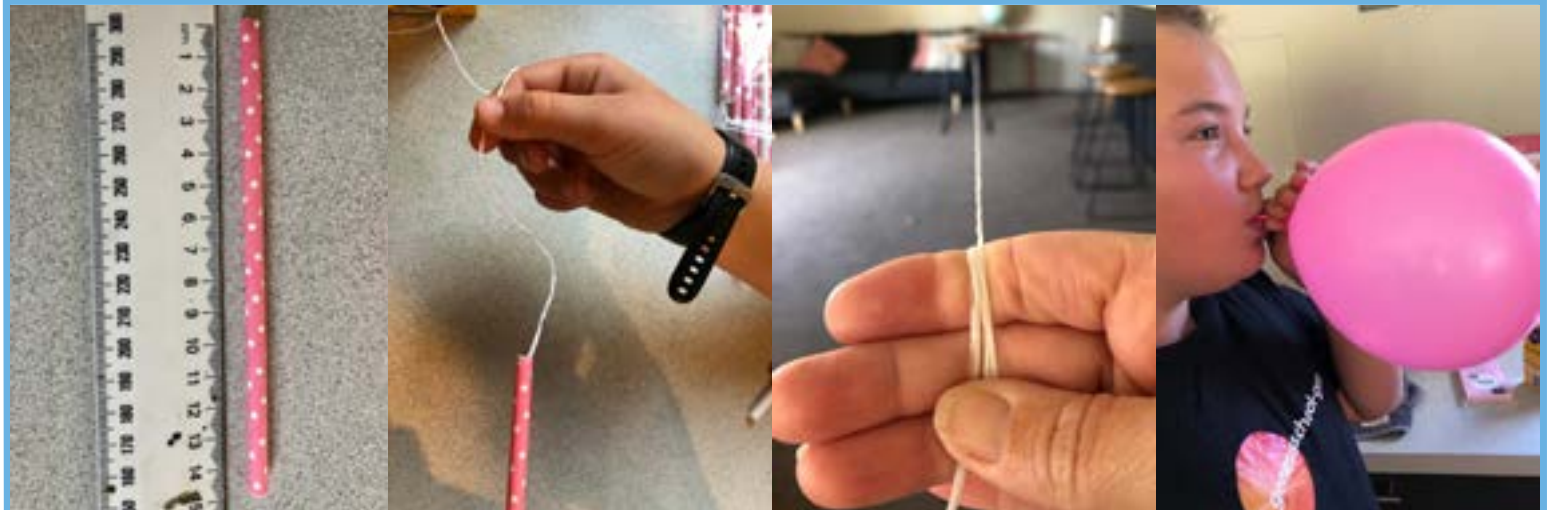
# Balloon on a String Rocket

## What you need:



- 4 m or longer piece of string
- 1 straw
- 1 piece of sellotape
- 1 Balloon

## Instructions:



1

Cut the straw in half.

2

Thread the string through the straw.

3

Tie the end of the string to a stool (or get someone to hold on tightly).

4

Inflate the balloon  $\frac{3}{4}$  full with air. Hold the balloon tightly - do not tie it off.

# Balloon on a String Rocket

## Instructions:

5

Tape the balloon to the straw half way, in line with the end of the balloon. With the end of the balloon pointing towards you, tape the straw onto the balloon. Position it in the middle of the balloon.



6

Count down from 10 and then let go of the end of the balloon. See if your balloon can hit the stool.

Remember science experiments don't always work the first time. If it does not work the first time you may need to 'problem solve'..... is the straw not in line with the end of the balloon? Was the string not held tight enough?

7

Repeat by either getting another balloon or by re-inflating the balloon (but be careful as once it has sellotape on it, The balloon is weakened and can pop easily).

8

Can you make it go further? Can you make it go straight up by tying to a curtain rail? HAVE FUN!

## Results:

Can you **observe** what is happening? Describe this to an adult, film your results or write them down. Measure the different distances your balloon can travel.



Wow, we hit the top!

We hit the stool!

WHY do you think it is doing this?  
How does the balloon thrust forward?

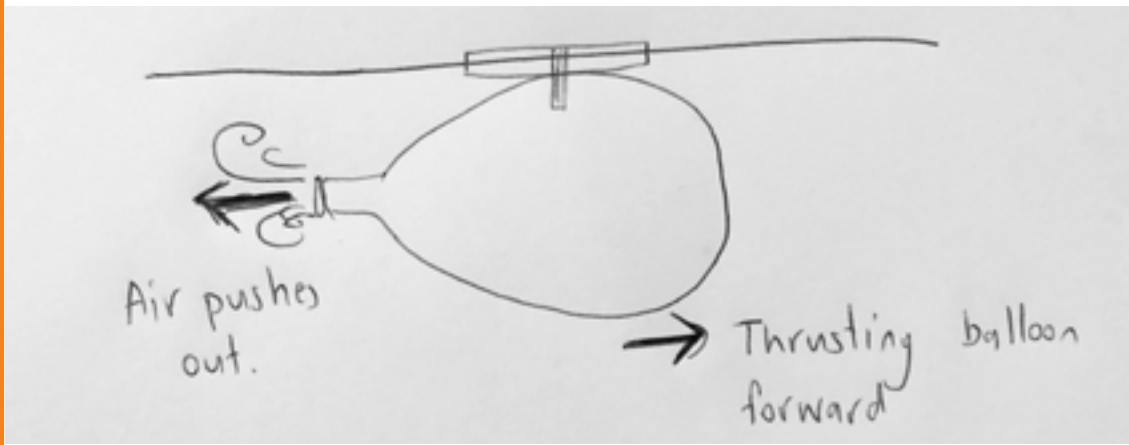
# Balloon on a String Rocket

## The Science Behind:



One of the four forces of flight is thrust. This is the force that propels the plane forward.

When you inflate the balloon then let it go the air rushes out the end of the balloon thrusting the balloon forward. Forces work in opposites, so air pushes out and thrusts the balloon forward in the opposite direction. Thrust is the pushing force created by the energy of the air rushing out. In a real rocket thrust is created by the energy of burning fuel. As the engine blasts down, it thrusts the rocket up!



## Act Like A Scientist:

Good Scientists like to explore and ask more questions!

Repeat this experiment and observe the changes

- What would happen if you used different size straws? Would this make a difference to what happens?



- Can you make it go as far with less or more air in the balloon?
- Would it work with different strings, wool, nylon or twine?
- Could you tape a Lego figure to your balloon (take him on a ride) or is it too heavy?