

# DIY Balloon rockets



## What Do I Need?

- Balloons
- Paper straw
- String
- Sticky tape
- Scissors
- Clips (the ones that are used for sealing food bags)

## Skill Level:

Medium

## Time:

20 minutes

## How Do I Do It?

1. Cut the straw in half
2. Cut two lengths of string - these should be long enough to reach between the two points that you will use in step 5.
3. Thread the two pieces of straw onto the two lengths of string.
4. Blow up two balloons and seal the ends using the clips. If you don't have clips, you can ask somebody to hold the balloon until you are ready to attach it to the straw.
5. Tie the strings between two points - one point should be higher than the other.
6. Using the tape, secure the balloons to the straws. You should now have your racetrack ready with a balloon/straw on each string.
7. Release the clips at the same time and watch your balloons race down the strings!

**Continued overleaf**

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## Safety Advice:

IMPORTANT GENERAL SAFETY NOTE FOR SUPERVISING ADULTS: This Terrific Scientific investigation has been devised so that with adult supervision, reasonable care and by following the instructions provided, no special safety equipment or knowledge is required to enjoy the experience safely. These safety reminders are designed to assist the supervising adult when planning and carrying out the investigation. Please read the instructions fully before starting.

## What's Happening? The Sciency Bit:

When you blow up the balloon, the pressure inside increases and becomes greater than the air pressure outside. When the clip is released from the balloon, the gas escapes and exerts a force upon the balloon. Demonstrating Newton's Third Law of Motion: "for every action, there is an equal but opposite reaction", the balloon pushes back with a force called thrust and the balloon moves forward.

How can you make your balloon move faster/further? Try experimenting with different shapes and sizes of balloon or try using fishing wire instead of string.

## My balloon rocket is not moving... What Can I Do?

- The balloon can become caught on the string, which causes friction. Try reattaching your balloon to avoid it touching the string.
- If the neck of the balloon is not pointing directly backwards, the thrust can cause the balloon to spin on the string, rather than moving forwards.