SCIENCE FUN AT HOME

Have some fun at home with these science activities from **Science Sparks** and the **Primary Science Teaching Trust**

BEFORE YOU START! Please read through this with an adult:

- Make sure you have read the 'IMPORTANT NOTICE' on the back of this page.
- If you have a space outside that you can use safely, then you can do the 'Try this outdoors' activity outside. Don't worry if not as you could still do it indoors.
- Talk to your adult about sharing the science you have done and if they want to share on social media, please tag **@ScienceSparks** and **@pstt_whyhow** and use **#ScienceFromHome**

ROCKET SCIENCE

You will need

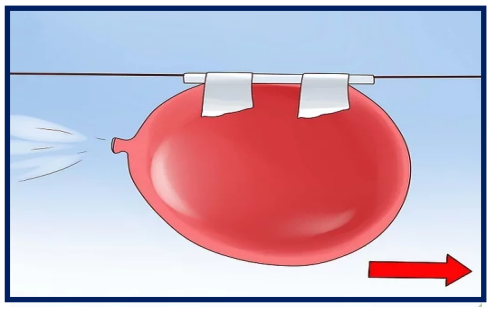
- A balloon
- Drinking straws
- String
- A clothes peg
- Sticky tape
- 500ml bottle (empty)
- Cork to fit bottle
- Kitchen roll
- 1 tablespoon of bicarbonate of soda
- Vinegar

1 TRY THIS INDOORS ... CRAZY BALLOON

Blow up a balloon and peg or pinch the neck to keep the air in. Cut a straw in half and thread it onto a long piece of string. Then tape it to the balloon in two places. Clear a space and tie the string between two chairs, or have one person holding each end, making sure the string is stretched tightly. Pull the balloon to one end and unclip the peg. It should go shooting along the string.

WHAT DO YOU NOTICE?
Things to talk about ...

What happens if you blow the balloon up more? Does it go further or faster? How can you tell? What could you measure? What if you used a different shaped balloon or changed the string for wool? What happens if you make the balloon more streamlined, e.g. by attaching a nose cone to it?



2 TRY THIS OUTDOORS .... ROCKET LAUNCH

SAFETY NOTE **You need a clear empty space for this activity. An adult should do steps 4 and 5 and anyone else should keep well back. Eye protection is recommended.**

1. Tape 3 straws to the side of a 500ml plastic bottle so it will stand up, upside down.
2. Pour about 2 cm of vinegar into the bottle, and wrap the bicarbonate of soda in the kitchen roll to make a little parcel.
3. Choose a hard surface outside to be the launch site.
4. Drop the bicarbonate of soda parcel into the bottle.
5. Cork the bottle quickly and tightly, put the rocket down and **STAND WELL BACK!**

WHAT DO YOU NOTICE?

Things to talk about ...

Try experimenting with different amounts of vinegar and baking soda to find the perfect combination. Remember you don't want the reaction to happen too quickly. What if you try lemon or lime juice instead of vinegar?

3 WHAT IS THE SCIENCE?

A chemical reaction takes place between the vinegar and bicarbonate of soda which produces a gas called carbon dioxide. This builds up inside the plastic bottle. When the pressure of the gas in the bottle is high enough the cork is forced out. The downward force of escaping gas causes an upward force on the bottle, making it shoot up into the air. This is an example of Newton's Third Law of Motion: **for every action there is an equal and opposite reaction.** The balloon rocket works on the same principle. The air rushing out of the balloon (the action) causes the balloon to move forward (the reaction).

4 MORE ACTIVITIES YOU COULD TRY

BECOME A ROCKET SCIENTIST! https://wowscience.co.uk/resource/rocket-science-101/

FLY A ROCKET THROUGH SPACE - https://wowscience.co.uk/resource/galactic-explorer/

BAKING SODA POWERED BOATS - https://www.science-sparks.com/baking-soda-powered-boat/

DESIGN A ROCKET – PRIZES TO BE WON! https://www.npl.co.uk/space-rocket-challenges-2020