

Questacon at HOME

Activity sheet – Balloon Rockets

Experimenting with Balloon Rockets

How do people travel to space? In a rocket. Have you ever seen a rocket before, maybe in a book or on the TV? Rockets are big machines that fly up into the sky, moving very fast and making a lot of noise. Balloons make great rockets to experiment with.

You will need:

- Balloons
- String, wool or fishing line
- A straw or cardboard roll
- Sticky tape

Basic balloon rocket

What to do:

1. Blow up a balloon (try not to pop the balloon by blowing it up too much- it can make a very loud noise)
2. Do not tie up the balloon, instead pinch the mouth of the balloon so the air cannot escape
3. What will happen when you let the balloon go?
4. When you are ready to launch, let it go and watch what happens.
5. Try pointing it in another direction. Guess which way the balloon will go before you let it go.
6. Change the amount of air you blow into the balloon (1 breath vs 3 breaths), will this make any difference? Make a guess before you let it go?

What's happening?

When you blow up the balloon, you are filling it with air. When you let go of the balloon, the air rushes out of the mouth of the balloon. As the air comes out of the balloon in one direction, it pushes the balloon in the opposite direction. This push is called thrust. In a real rocket, thrust is created by burning rocket fuel – as the engines blast down, the rocket goes up.



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String Balloon Rockets

What to do:

- Tie one end of the string to a chair, doorknob or other structure
- Put the other end of the string through your plastic straw/tube
- Pull the string tight and tie it to another support in the room
- Blow up a balloon and pinching the end, stick the side of the balloon to the plastic straw/tube with some sticky tape
- What do you think will happen when you let go of your balloon? Let go of the balloon and see what happens
- Try experimenting with changing the amount of air you put into your balloon, what will happen?
- Set a target (soft toy, ball) under the string and see if you can get your balloon rocket to stop over the top of your target.



What's happening?

As with the previous experiment the air in the balloon rushes out in one direction pushing the balloon in the opposite direction. The string and straw help to keep the rocket going in a straight line. The more air in the balloon the greater the thrust pushing the balloon in the opposite direction causing the rocket to travel further.

Discover more:

Watch Questacon's early childhood Science Time *Space & Rockets* episode on Questacon's YouTube channel to discover more.

Could you use your balloon rocket to make other things move? Try attaching it to a toy car or a boat in the bath!

