

Rocket Balloon

Make a balloon that flies like a rocket

You will need:

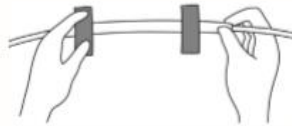
- piece of string (about 2 to 3 metres long)
- balloon
- 2 chairs
- drinking straw
- tape
- scissors



1 Tie one end of the string to the back of the chair.



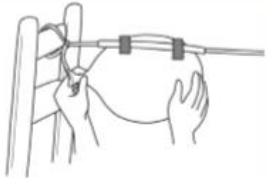
2 Thread the straw onto the string and tie the other end of the string to the other chair.



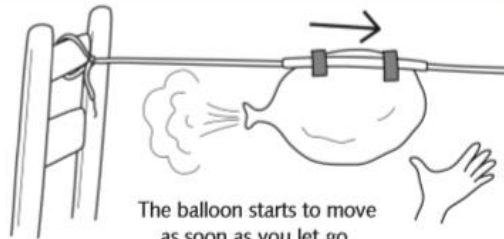
3 Attach the pieces of tape to the straw as shown.



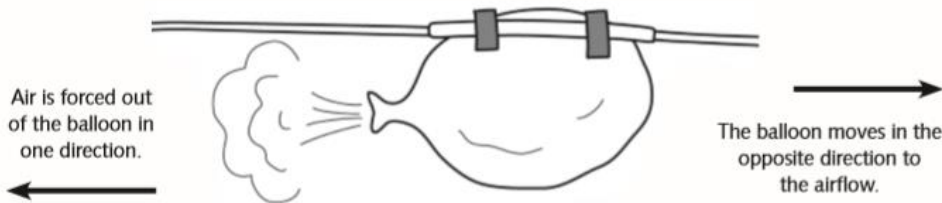
4 Inflate the balloon, hold the opening and attach it to the straw with the tape.



5 Pull the balloon to one end of the string and let go. What happens?



The balloon starts to move as soon as you let go.



Air is forced out of the balloon in one direction.

The balloon moves in the opposite direction to the airflow.

Action and reaction

To make something move one way, a force has to work in the opposite direction – this is known as “action and reaction”. The air inside the inflated balloon is pushing in all directions. When you let go of the balloon, air rushes out the hole, creating a pushing force in the opposite direction. This makes the balloon move.

Rockets

Real rockets work in a similar way to your rocket balloon. A rocket engine works by exploding fuel inside a chamber that is open at the bottom. The force of the exploding fuel coming out of the rocket creates an opposite force that pushes the rocket up and on into space.



1. What items do you need to make a rocket balloon? Tick all that apply.

A stool A straw A piece of string A rocket A balloon

2. Look at steps 1 to 5. Find and copy **one** word that tells us that we need to blow up the balloon.

3. Number these instructions 1 to 5 in the order they occur in the text.

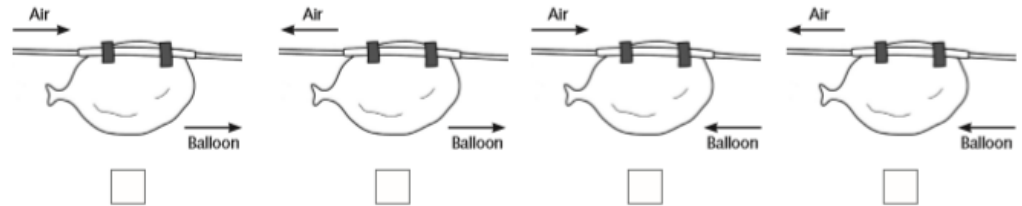
Let go of the balloon. Tie the string onto a chair.

Collect all the equipment that you need. The balloon starts to move.

Blow up the balloon.

4. Once you have followed instructions 1 to 5, what happens to the balloon when you let it go?

5. Tick the picture that shows the correct movement of the balloon and air.



6. What phrase from the text is used to describe the movement of an object when a force is working in the opposite direction?

7. Why is there a section about rockets in these instructions?

8. What do you think would happen if you used a bigger balloon for this experiment? Explain your answer using evidence from the text.
