

The quick as a flash balloon rocket



Can you imagine what rockets, aircraft and octopuses have in common? They move along in a similar way, namely by means of the so-called backward thrust.

In this simple, yet exciting home experiment we will show you exactly what that is and how it works!



What you need:

- A piece of thread
- A straw
- A ruler
- A pair of scissors
- A balloon
- A clip closure
- Adhesive tape



What to do:



1.

Cut off a straight piece of the straw that is around 15 cm in length.

2.

Thread the piece of straw onto the piece of yarn. Then fasten the end of the thread to a stool, shelf or something similar.

Knot the other end to a further stool (or similar). The stool doesn't have to be exactly the same height as the first stool - it can be higher or lower. Your balloon rocket will namely then actually manage to ascend slightly! The distance can gladly be quite a long one.



3.



Breathe in deeply - and start blowing: Now blow the balloon up. Close the opening using a clip so that the air doesn't escape yet.

4.

Then, stick the balloon to the piece of straw on one side of the thread using a piece of adhesive tape. Make sure that the closed opening faces towards the rear. Now you are ready to let the rocket take off:

Simply remove the clip and watch how the balloon flies along the length of the yarn as fast as an arrow!





Why does the balloon rocket fly?

Air comprises of countless small particles, even if you can't see them with the naked eye. When you blow a balloon up, you fill it with lots of these particles. Then, too many particles of air are located in too tight a "space", i.e. the balloon. This is also known as high pressure.

The particles of air try to balance the pressure again. In order to do so they have to escape from the balloon. So, as soon as you open the seal, in other words the clip, they flee from the balloon as fast as lightning.

Due to the fact that the air particles flow backwards at high speed, the balloon on the other side moves forwards - pretty fast too, as you just saw. This type of propulsion is called "backward thrust". The thread guides your rocket in a certain direction, because otherwise it would simply whoosh through the air aimlessly.

Rockets and aircraft also move along using backward thrust: They thrust the consumed fuel out of the back of the aircraft turbines in order to move forwards.

Octopuses don't use fuel of course, but instead water. First of all, they suck it in and then press it out of their body again through a sort of funnel under high pressure. The backward thrust pushes the creatures forwards. Rather clever, don't you think?

