



The Magic Water Rocket

Build a real rocket that flies 10 meters high
using just a plastic bottle!

Ø<β Ages 5–10

#ñ 20–30 min

+P+P Easy

Ø<Ÿ“ Free

In this STEM activity, your child will discover fluid physics and air pressure by building a rocket that actually launches! Simple, spectacular, and unforgettable.

& p **Safety: Always do this outdoors — adult supervision required**

Ø<β• **Free guide by Spark Nest — sparknest.nanocorp.app**

Explore our 20 premium STEM activities for children ages 3–10

=Ý, The Science Behind It

When you pump air into the bottle partially filled with water, you compress the air inside. Pressure builds up until... BOOM! The pressure ejects water downward, and following Newton's law (action = reaction), the rocket flies upward!

This is exactly how real space rockets work — they eject gases downward to shoot up into space!

' What your child learns

- =ß Fluid physics — How water and air interact
- =Ü Air pressure — More pumps = further flight
- =ÜÐ Trajectory — Launch angle changes distance
- =Ý, Scientific method — Observe, measure, repeat
- =Ð Newton & action-reaction — Real rocket physics

=ß

Level
+P+P (2/5)

=Üv

Age
5–10 yrs

#ñ

Duration
20–30 min

Materials List

Everything you need — probably already at home!

☐ 1 empty 1.5L plastic bottle
Water or soda bottle

☐ 1 cork or special stopper
Water rocket kit: [amazon.co.uk/s?k=water+rocket+kit+kids](https://www.amazon.co.uk/s?k=water+rocket+kit+kids)

☐ 1 bicycle pump with needle
Needle adapter for ball pumps works too

☐ Water (about 1/3 of the bottle)
Tap water is perfect!

☐ Open outdoor space
Garden, park, or large yard

☐ Safety glasses
Optional but recommended — available on Amazon

Optional

ESTIMATED TOTAL: \$0–10 (if you already have a bike pump)

Step-by-Step Instructions

1

Prepare your rocket

Fill the bottle about 1/3 with water. No more — the rocket needs air space to build pressure!

2

Install the stopper

Push the cork into the bottle neck. Not too tight — it needs to hold under pressure but release at launch.

3

Insert the pump needle

Push the pump needle through the cork. The needle must go all the way through to let air in.

4

Flip the rocket upside down

Place the bottle upside down — cork touching the ground, bottle bottom pointing skyward. This is your launch pad!

5

Pump 10 to 15 times...

Pump slowly and steadily. Pressure builds inside the bottle. You'll feel resistance — that's a great sign!

6

LAUNCH!

The rocket blasts off on its own! Water shoots downward and the rocket soars into the sky. Congratulations, you're an astronaut!

Go Further

Try with more water

Compare launches with 1/4, 1/3, and 1/2 bottle of water. Which flies highest? That's a real scientific experiment!

Decorate your rocket

Add cardboard fins, a pointy paper nose cone, and paint your rocket. Design your own space mission logo!

Measure your distance

Use a tape measure to track each launch. Keep a science logbook — what record can you break?

Loved this activity?

Discover our 20 premium STEM experiments — no screens, no special purchases. Expert-designed for ages 3–10.

See full guides !' Code: ROCKET10

sparknest.nanocorp.app

🚀 Bonus Resources

The 5 questions children always ask after this activity:

'S Why does the water shoot up so high?

🚀 Compressed air pressure blasts water down very hard. Newton's 3rd law: the action (water down) creates an equal reaction (rocket up)!

'S What is compressed air?

🚀 Compressed air is lots of air particles squeezed into a small space. They push hard in all directions trying to escape!

'S Why use water and not just air?

🚀 Water is much heavier than air. When it shoots out fast, it pushes the rocket much harder than air alone would.

'S Can we launch again?

🚀 Yes, as many times as you like! Refill the water, reinstall the cork, and repeat. Each launch can be different!

'S Do real rockets work the same way?

🚀 Almost! Real rockets burn fuel instead of using water, but the action-reaction principle is exactly the same.

🚀 Continue the STEM adventure!

20 premium activities · Screen-free · Ages 3–10
sparknest.nanocorp.app | Promo code: ROCKET10 (" 10%)