

# Film Canister Rocket

## What you need:



- Water
- Film canister
- $\frac{1}{4}$  of a Berocca or similar fizzy effervescent tablet.

## Instructions:

You may want to do this experiment outside as it can go quite high and it may get messy!



1

Fill the film canister half way with warm water.



2

Drop a quarter of the Berocca tablet into the film canister.



3

Place the lid on the film canister and place it upside down.  
**Please note: DO NOT stand over top of the canister as it flies up quickly. Do this on a tray. Count how long it takes to BLAST OFF!**



4

Repeat with cold water, then with hot water. Which works faster? **Great scientist's make predictions (educated guesses before they do the experiment). Which rocket will 'Blast Off' the fastest; the cold, warm or hot water rocket.**



5

Time to clean up the mess!

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## Results:

Can you **see** what is happening? Describe this to an adult, film your result, it looks fantastic in slow-motion, or write it down.

Time how long they take to blast off.

What works faster; cold, warm or hot water?

WHY do you think it is doing this? How does the balloon thrust forward?



## The Science Behind it:

One of the four forces of flight is lift; this pushes the rocket upwards. Another is the force of gravity, this pulls the empty rocket film canister back down to earth.

When you drop the Berocca tablet into the film canister, the tablet reacts with the water to form bubbles. These bubbles are released to the surface. When you seal the lid the gas builds up and wants to escape.

Gas molecules are a state of matter that have no fixed shape or volume, instead they move around trying to spread out evenly and fill up the film canister. Once the canister is too full with the gas molecules, they will start colliding with one another and try to escape. Eventually, they will POP and push the canister lid off with a loud bang! This is similar to when you over inflate a balloon.

## Act Like a Scientist:

Good scientists like to explore and ask more questions!

Repeat this experiment and watch the changes

- What will happen with less water and more room for gas? Will it fly up higher?
- What will happen with more water and less room for gas? Will it fly up higher?
- Do this same experiment with baking soda and vinegar. Does the same thing happen?
- Can you measure how high your film canister rocket goes?
- Could you add a small parachute on top of your film canister? You can make this out of an old plastic bag and string. Does it slow the canister landing?

