

## Alka-Seltzer Rocket

Create your own mini rocket



Grab this stuff:

- A** Empty film canister
- B** Alka-Seltzer tablet
- C** Teaspoon
- D** Water

## Alka-Seltzer Rocket



Remove the film canister's lid. Break off a quarter of one tablet and place it on the inside of the canister lid. Put 2-3 teaspoons of water into the empty canister.



1



Tip the quarter tablet into the canister and snap the lid shut. It is important to have a tight seal. Shake the canister for a few seconds.

2



Place the film canister on a flat surface, lid down. Step back and wait!

3

# Alka-Seltzer Rocket notes

## Aims

- Predictions – learn how to make predictions about mixing materials to create a particular result.
- Investigation – learn about carbon dioxide (CO<sub>2</sub>), forces and chemical reactions.
- Materials – learn about the reaction between Alka-Seltzer and water.

## Practicalities and preparation

You can get film canisters free from photo developing shops. The best film canisters to use are the opaque ones where the lid fits inside the canister.

## Safety information

- Please remember Alka-Seltzer contains aspirin, therefore we recommend that children are not left alone with the tablets.
- Treat the rocket as you would treat fireworks. Never stand over the film canister once it has been turned into a rocket.

## The science – an introduction

The Alka-Seltzer tablet reacts with the water and produces a gas called CO<sub>2</sub>. Pressure builds up in the canister as more gas is released, and the lid is eventually forced off. Sir Isaac Newton's third law of motion states, 'For every action there is an equal and opposite reaction,' and this activity demonstrates it clearly: the lid pushes down against the surface, and the canister pushes upwards in the opposite direction, shooting off into the sky!

## Discussion

- What happens when you are swimming?
- How is this the same as what happens in your rocket? (Newton's third law of motion – every action has an equal and opposite reaction.)
- What happens when Alka-Seltzer is added to water in a glass?
- Will the temperature of water affect the reaction time?
- How high can you get your rocket to go?
- Will the amount of Alka-Seltzer used change the outcome of the reaction?

- Who was Sir Isaac Newton?  
Sir Isaac Newton (1642–1727) was an English scientist.

He admired a scientist who died shortly before he was born called Galileo Galilei. He believed (like Galileo) that the world was similar to a machine and that a few mathematical laws could explain how it worked.

Newton is famous for discovering the theory of gravity after watching an apple fall in an orchard (it never really fell on his head!).

## Extensions

- Create your own rocket covering. Be as creative as you like.
- Can you go bigger?
- What else can be used instead of a film canister?
- Measure how far the rocket goes. This will require additional materials: empty paper towel roll (the cardboard tube) or a similar size plastic tube, plus duct tape.

Seal the end of the cardboard tube with several pieces of duct tape or use a plastic tube with one end sealed. Prepare the Alka-Seltzer rocket as normal, but instead of placing the rocket down on the table, slide it (lid first) down the tube. Point the open end of the tube away from yourself and others and wait for the pop. You can now measure how far the rocket went across the room.

## Links to real life

- Real rockets behave in the same way; they just use a different fuel (oxygen and hydrogen).
- When swimming breaststroke you push the water backwards and you go forwards in the opposite direction with just as much force.

## Links to the Science Museum

Galleries:

- Exploring Space
- Making the Modern World
- atmosphere ...exploring climate science

## Further information

- Lava Lunacy
- Blow-Up Balloon