



Rocket Mission UK

Build Your Own CO₂ Rocket Film canister mini-rockets



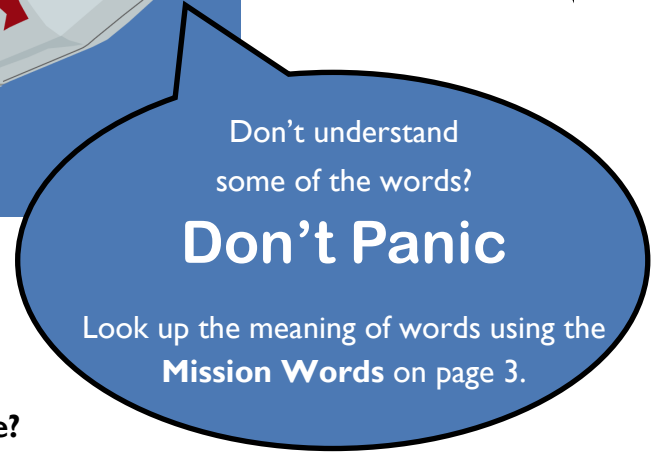
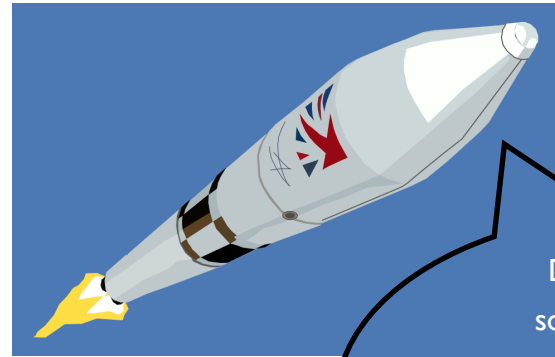
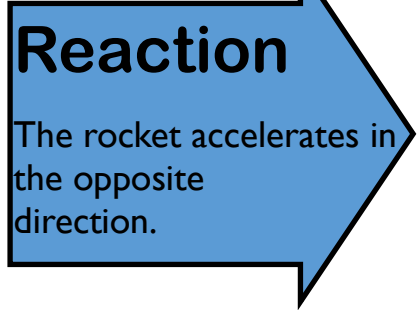
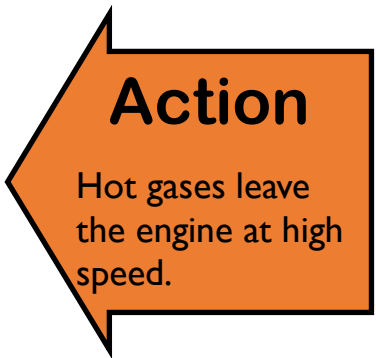
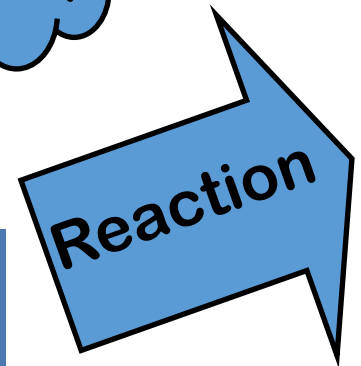
In this mini-project you will build your own CO₂ (carbon-dioxide) rocket. On this first page we'll look at how rockets work. It all begins with action and reaction. You will need **Courage, Optimism, Regard** and **Endeavour** to be a successful rocket engineer. Look at the Mission Words on Page 3 to find out what these words mean for rocket engineers.

Newton's Third Law of Motion: "Every action has an equal and opposite reaction"

Have a look at these videos to get you started:

Easy and Fast explanation: <https://www.youtube.com/watch?v=iV3NXFkdUyw>

Bring it on!: https://www.youtube.com/watch?v=cP0Bb3WXJ_k



How your CO₂ Rocket works

The antacid tablet reacts with the water to create carbon dioxide (CO₂). The CO₂ builds up in the canister. The pressure increases until the lid is forced off. The water and CO₂ rushing down out of the canister causes the canister to launch upwards. We have lift-off!

Action and reaction!



Want More Rocket Science?

Try this video called Rockets 101:

<https://www.youtube.com/watch?v=1yBwWLunlOM>

Find out about rocket launch sites in the UK:

<https://shetlandspacecentre.com/>

<https://spaceportcornwall.com/>



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Your rocket needs an aerodynamic shape and fuel to get it successfully off the ground. Here are the ingredients you'll need for a film canister rocket:

Watch this video tutorial to help you build and launch your rocket:

Ingredients:

- 35mm film canister (from before digital photography... available online)
- Paper for the nose cone.
- Antacid tablets (e.g. Alka-Seltzer... other antacid tablets are available)
- Sticky-tac (e.g. blu-tac/white tac... other sticky putties are available)



How do I build my mini-rocket?

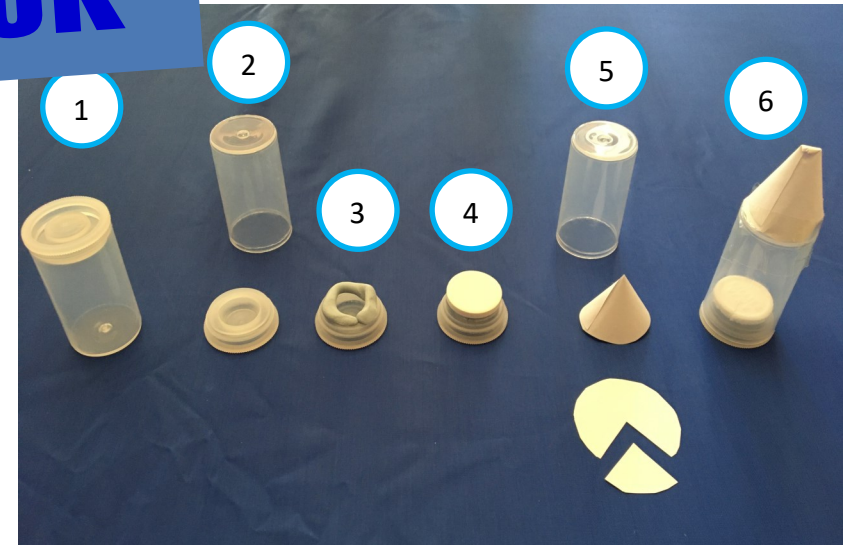
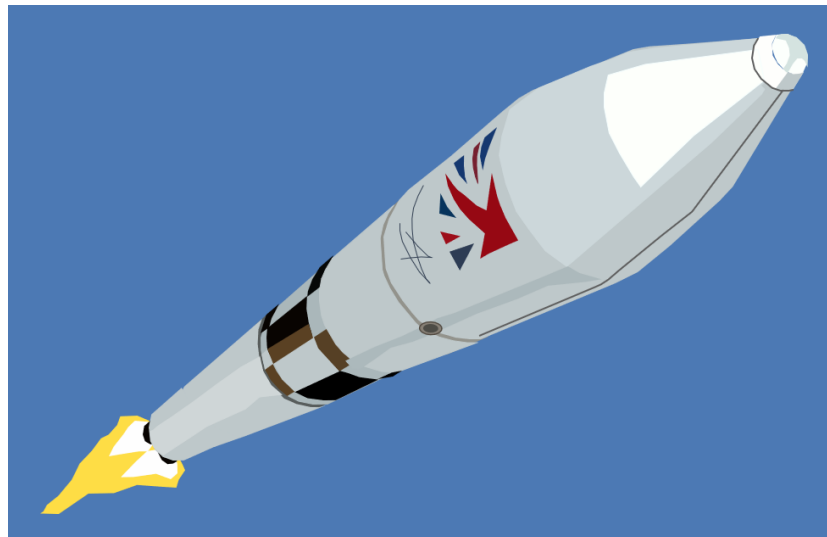
- SAFETY FIRST! Check with a trusted adult before starting on this project. Make sure you read the antacid safety information together and understand how to use them safely.**

2. Take the lid off the film canister and turn the lid upside-down.

3. Roll out a small amount of sticky-tac putty and form it into a ring. Place the ring on the canister lid.

4. Fix an antacid tablet to the sticky-tac on the lid.

5. cut out a small circle of paper and cut out a cheese wedge shape. Glue the remaining shape to form



How do I launch my mini-rocket?

- Find a safe, flat, stable surface outside for your launch.
- Take the lid off your rocket.
- Put a small amount of water into your canister so that it is about 1/4 full.
- Keep the nose cone pointing down and attach the lid so that it is sealed tightly.
- Place the canister on your chosen launch site and calmly move aside and wait...

NOTE: Never point the mini-rocket at anyone or Never stand over the rocket while you are waiting for it to launch. Be safe and have fun!

Take pictures and/or videos of your rocket launch and share on Edmodo.



Mission Words



HELP! Lost In Space? Don't Panic

Look up the meaning of words on this **Mission Words** page.

Remember you can also ask your CapCom and look up words online.

CO ₂	CO ₂ is the chemical formula for Carbon Dioxide. CO ₂ is present in the air you breathe out. It is also created when an antacid tablet reacts with water. It is the CO ₂ that makes the water fizz and bubble.
Motion	When something is moving we say it is in motion.
Newton's Third Law of Motion	Did you know that when you sit on a chair, the chair pushes back! Newton's Third Law of Motion explains why when you sit on a chair, it supports your weight. The force of gravity on you is equal to the force of the chair pushing back. If the chair did not push back you would fall on the floor!
Aerodynamic	The more aerodynamic a rocket is the easier it will fly through the air. A streamlined shape can be called aerodynamic.

Courage

#BeBrave

Rocket scientists and engineers need to be brave when designing and building rockets. Space is a tough place to work. Rockets need to be very well designed. When we are brave we are showing courage.

Optimism

#BePositive

Rocket engineers have a dream of what was possible. Many people will not believe that their dream is possible. If they believe that through application of engineering knowledge and skill their dream can come true, then they are showing **optimism**.

Regard

#BeKind

Rockets are designed and built by teams of skilled and **courageous optimists**. Looking after your team members and making sure they are safe and well is called having **regard** for your team. Successful teams have regard for each other.

Endeavour

#BeProuctive

Even courageous optimistic engineers need to work hard to make their dreams come true. When we work hard to make a dream come true it is called **endeavour**.

Action

The action is the thing that causes the reaction. You sit on a chair and the chair pushes back. When hot gases push down out of a rocket, the rocket is pushed upwards.

Reaction

The reaction is caused by an action. When you stand on a step it supports you. The step reacts to your weight by pushing back and supporting your weight.

