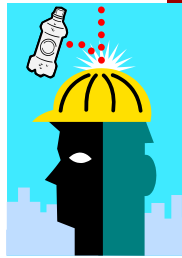


Safety

Safety is very important for this challenge and you enter at your own risk. We must also take steps to make sure no bystanders get hit by flying parts. Whatever you stick on to the rocket must be glued on firmly to prevent bits flying off at launch. Rockets must be safe to fly and the Range Officer will check all rockets before they fly to make sure they won't tumble in flight and bits don't fall off.



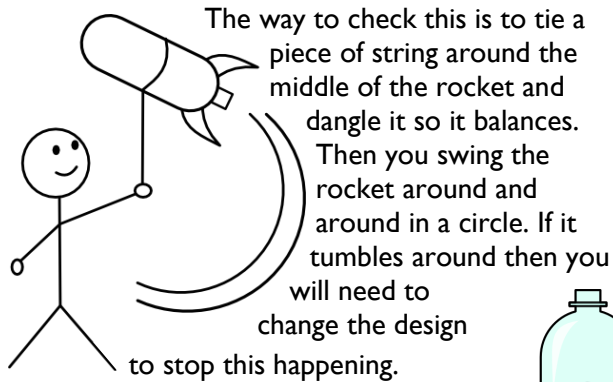
make water rockets



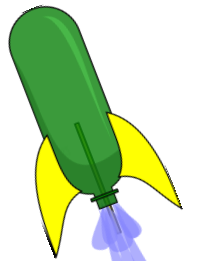
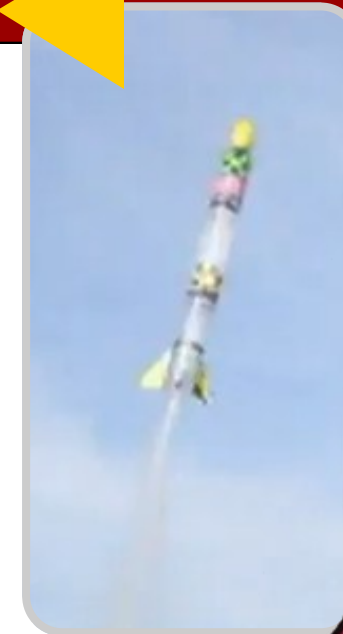
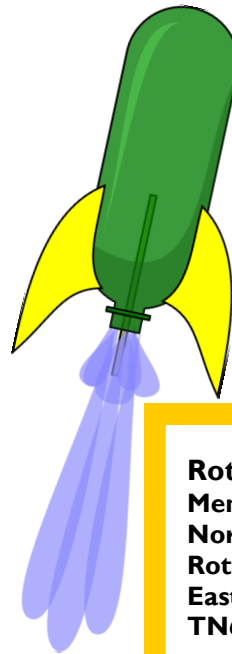
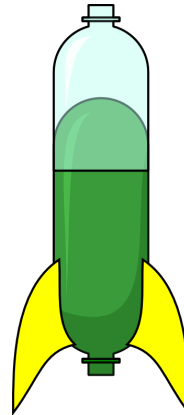
The Water Rocket Challenge

The Water Rocket Challenge is one of the events at the Rotherfield St Martin Summer Fayre on Sunday 8th July 2012 in the garden of The Kings Arms

Follow this guide to discover how to make your own rocket for entry in the challenge.



Do check your rocket is safe to fly before the event!



Rotherfield St Martin Memorial Institute
 North Street
 Rotherfield
 East Sussex
 TN6 3LX

Tel: 01892 853021
 Email: summerfair@rotherfieldstmartin.org.uk
 Web: rsf2012.weebly.com




Find out more on our website

rsf2012.weebly.com



Rotherfield St Martin in Partnership with The Kings Arms.
 Rotherfield St Martin is a Church-In-Community project based in the heart of Rotherfield providing on-going social support, care and well-being for senior citizens in our community and the surrounding areas.

The Water Rocket Challenge

Teams are invited to build their own water rockets for entry in the Rotherfield St Martin Summer Fayre Water Rocket challenge.

Rockets are judged on the height and distance they travel, as well as on appearance and technical merit. There will be prizes for the best entries in each category and for an overall winner.

To build a rocket you need to start with a plastic bottle.

You need to choose one which contained a fizzy drink as these are designed to handle pressure.

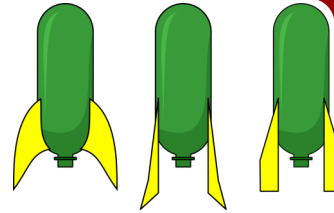
Choose your bottle carefully



You can choose a bottle of any size you can find – the smallest might be 500ml, and the largest are up to 3litres. The bottle MUST have a screw cap neck with an internal diameter of 22mm. Most fizzy bottles do – it is the standard size. But you must check the size is correct or the rocket will not fit on the launcher. Bottles with straight sides work better than ones with curved sides.

Add some fins

You can launch a plain bottle – but it will tumble in flight and not go very far. To stabilise the rocket, you will need to add some fins. These need to be stiff and waterproof, so you could use plastic, Correx sheet or Funky Foam. You'll need to experiment with the shape and the positioning to find out what works best.



Which glue?

You'll also need to experiment to find a way to fix the fins to the bottle. This can be tricky as the plastic that these bottles are made from is difficult to glue onto. Contact glue can give good results (Try Evo-Stick Impact), and duct tape works quite well, if you can't find anything else. Do not use hot glue, as this will melt or weaken the bottle and create a bursting risk. Again, you will need to experiment to find what works best.



Nose cone

The bottom of a bottle is not really very aerodynamic, so you will need to find a way to round off the nose cone. In the example above, the neck of a second bottle is stuck on the bottom of the first bottle. There is also a soft foam rugby ball to cushion the landing and increase nose weight and aid flight.

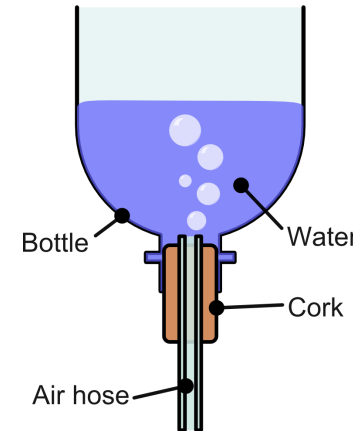
The example on the left is similar. This time the foam rugby ball is yellow, fixed to the neck of a clear plastic bottle with the bottom cut off and slipped over the end of the lower green bottle.



Launcher

The launcher we will be using will be similar to the one pictured right—a Cable Tie launcher.

A launcher similar to the one pictured will be provided on the day of the challenge, but you are welcome to make your own if you like. If you would like to make your own launcher there are more instructions on our website.



How It Works

The fuel for these rockets is plain tap water. You need to decide how much to pour into your rocket before launch—about a third of the volume is usually best.

Pumping air into the rocket stores up energy.

When the cork pops out this energy is released. The water is pushed out of the bottle really quickly, and the rocket whooshes off in the other direction.

