



SUPERSTAR

Racing Rockets

Organiser's Card



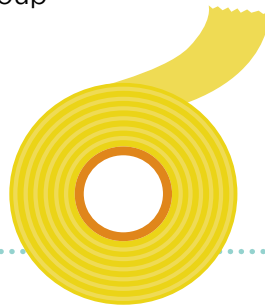
About the activity

This activity is designed to get the children to think about rocket designs and build a rocket that can go as high as possible.

The children have seen a poster about a new rocket competition inviting them to design and fly a rocket. The competitors need to set their sights high and produce creative ideas.

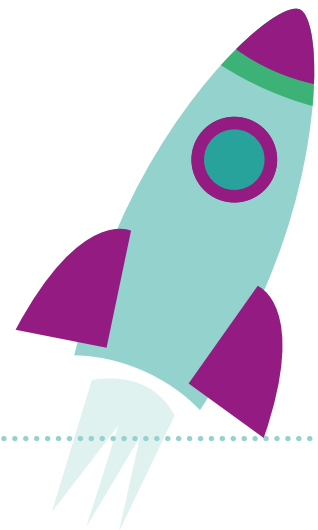
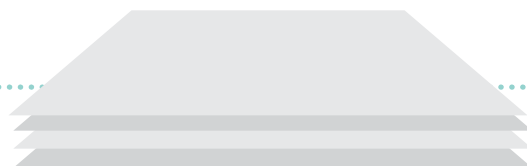
Through this activity you will support your group to:

- Think about different shapes of rockets
- Test different rocket shapes and sizes
- Share their findings with the rest of the group



Kit list

- Pencils or dowel to roll the rockets
- Strips of paper or card (cut to 1/4 of an A4 sheet)
- Sellotape
- Scissors
- Plastic straws – 1 per child
- Metre ruler or tape measure
- Plasticine, Blu-Tack or paperclips to add weight
- Extra card to make fins



What to do

1. Read the activity card to familiarise yourself with the activity.
2. Check the kit list to ensure you have the correct resources.
3. Set the scene using the poster and invite the children to enter the competition.
4. Give children a short time to talk about rockets and share their ideas.
5. Give each team the resources that they will need for the challenge.
6. Let children explore making and flying the basic tube shape. Give support to any groups that seem to be struggling.
7. Once they have the basic shape working, give children plenty of time to experiment to find out what makes a difference to how the rocket flies. They may need to make several versions to compare them.
8. When the time is up, all the children gather to present and test their rockets.
9. Measure the distance that each rocket travels. Test them three times each. It is up to you to decide if children can repair or adjust their rockets after each test.
10. Give points to each rocket according to the distance travelled. You can give extra points for design.
11. Announce the winners of the competition.
12. Encourage children to decide what made a difference to how each rocket flew. They could do a design report for Windy Astralbody.
13. The winning designs can be displayed on a podium.

Things to think about

The rockets will not work very well unless one end is flattened, folded and sealed. Let them explore this for themselves first.

Watch out for children launching rockets by hand rather than blowing.

The children will need to agree on where to launch their rockets from and how the flight will be measured.

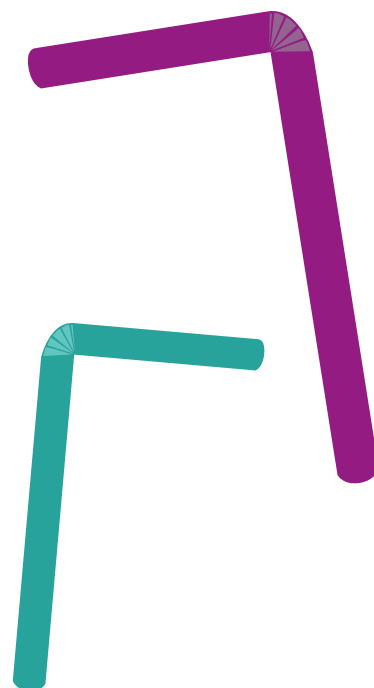
Take it further

Once children have the basic rocket shape there is plenty of scope for investigation such as size, materials and shape. Three important things affect the way rockets fly – aerodynamics, stability and balance.

Flattening and folding one end will help to make the rocket more aerodynamic and prevent air escaping. Children might experiment with trying to make the nose more cone-shaped.

Children can try attaching fins in different positions. This will affect the stability of the rocket. Fins at the tail end tend to be the most stable.

Weight will also affect the flight. A little additional weight at the tail end can help. If it is too heavy it may not fly at all.



Keywords

- Aerodynamics
- Flight
- Rocket

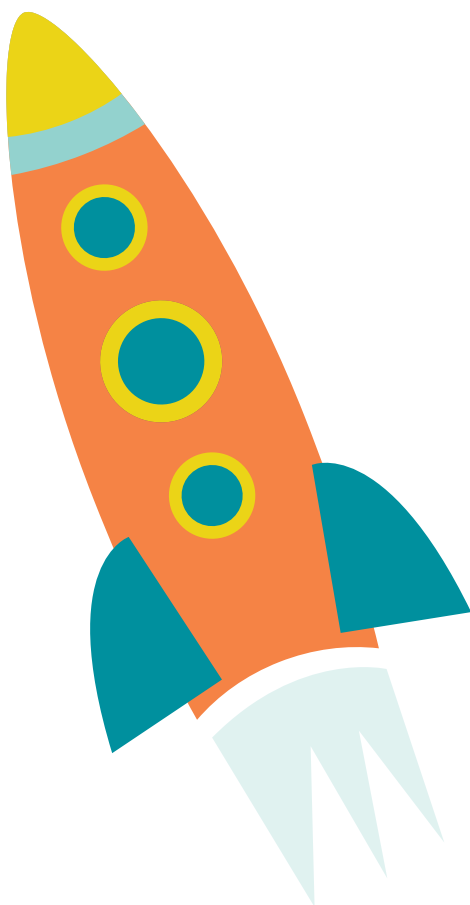
Watch out!

Remind children to stand behind the rockets as they are launched. Do not let children swap straws.

Remind children not to over-exert when blowing the rockets.

Find out more

Paper rockets could also be launched using plastic bottles.





SUPERSTAR

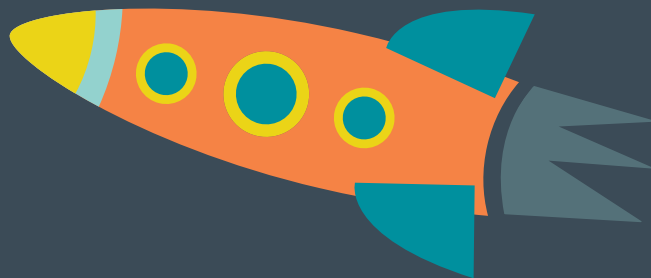
Racing Rockets

Activity Card

You've seen a poster on the noticeboard in town:

Director Windy Astralbody told us, "It's a tall order but we hope competitors will set their sights high and maybe even break some records. We are looking for really creative ideas. Who knows, one day the winners might get to go into space in a real rocket."

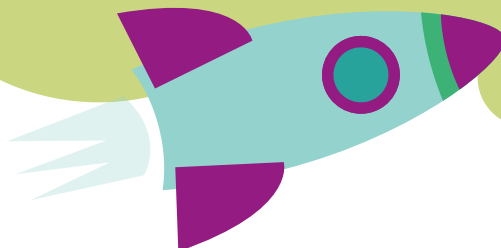
A NEW ROCKET COMPETITION IS BEING LAUNCHED TODAY BY THE SPACE RESEARCH ASSOCIATION, 'RACING ROCKETS'.



The competition invites children to design and fly a rocket.

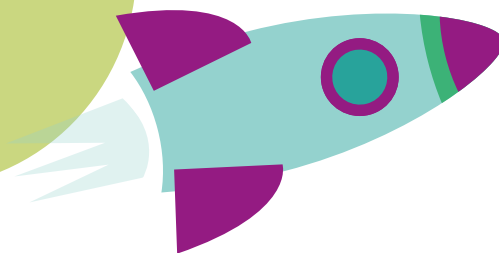
Your challenge

Can you design a rocket that will go the furthest? Building a proper rocket is difficult but you could investigate rocket shapes that might look something like this.



Discuss

Are all rockets the same shape?
What is important about the shape of rockets?
Does everyone agree?



Getting started

This is how you make your basic rocket shape.

Roll a strip of paper or card round a pencil (not too tightly) to make a tube.
Tape it in 3 places to keep it together, then take the pencil out.
Flatten one end of the tube, fold it over and secure it with tape.
Slide the tube onto a straw.
Blow your rocket across the room and see how far it goes. Don't blow too hard.

Test your ideas

How you can improve its flight?
Do you think fins will help?
Where is the best place to put them?
What shape should they be?
What about the size of the rocket?
Is card better than paper?
Does it help to put some weight in the rocket?
Try different rockets and choose the one that you think is best.



Share your ideas

Hold the 'Racing Rockets' competition. Each team needs to tell everyone else about their rocket design and then measure how far the rockets travel. Test each one three times. You could send your designs to Windy Astralbody and put the winning rockets on a podium.

Extra things to do

What other ways could you make a rocket? Find out what you can from books and the internet, then make and test some.

You could write a consumer report to compare and contrast rockets.

Several countries are trying to use rockets to travel into space.
Can you find out more about them?