



# Fast, faster, fastest

## Rockets

### time

60 minutes

### learning outcomes

To:

- know that you need a rocket to travel into space
- know that a rocket needs a motor and fuel to be launched

### end product

- a rocket

### materials needed

- 12 containers
- 12 clothes pegs
- 12 drinking straws (not the bendy type)
- 5 metres of fishing line
- 2 chairs
- coloured A4 card
- rulers
- A3 paper
- sticky tape
- cardboard
- a range of different balloons
- scissors
- optional: prize for the winner

## Preparation

For the activity **Build your own rocket** fill each of the 12 containers each with a clothes peg, a balloon, scissors, sticky tape, cardboard, pencil, ruler, and a drinking straw.

Prepare a flightpath for the rocket as follows: Tie one end of the fishing line to a chair. Do not tie the other end of the fishing line to the other chair until you have threaded it through the drinking straw of the child's rocket. Put the chairs far enough apart to hold the line taut. You should aim for a flight path that uses the full width of the classroom.

For the activity **Rocket race**, enlarge the table on the activity sheet onto A3 paper. Make sure you have a small prize ready for the winner of the rocket race (optional).



## Journey into space 10 min.

Ask the children how you travel into space. What kind of vehicle do you need to get you there? Explain that astronauts use a rocket to travel into space. Ask the children if they know how this works and encourage them to share their ideas. Discuss these ideas together.



The children make their own rocket.



## Build your own rocket 30 min.

Ask the children what a rocket needs for launching. What could you use for this? Conclude that a rocket needs a motor and fuel to launch it. Explain that in the rockets you are going to make, the balloon will be the motor. The air in the balloon acts as a propellant to launch the rocket. Discuss some requirements the children's rockets will need to fulfil.

Organise the children into pairs. Give each pair a container containing the things they will need to make a rocket. Explain that they will consider the requirements and use the items in the container to make a design for the fins of the rocket. When they have done this, the children can trace their fins from the worksheet onto the cardboard.



Read Task 1 of the worksheet with the children. Help the children where necessary to make their rocket.



Now the children will test their rockets to see how far they can fly. Help the children to thread the fishing line through their drinking straw and to tie it to the chair. Ask the children what they might do to make their rocket go as far as possible? What changes can they make to help their rocket go even further? Do the fins need to be flatter? Or the rocket itself bigger? Encourage the children to change their rocket if necessary.



## Rocket race 20 min.

Show the children the table on the A3 sheet. Write down in the table how far each pair of children thinks their rocket will travel. Explain that each pair will have four turns at launching their rocket. Each pair launches their rocket and measures how far it travels along the flight path. Record the distances in the table on the A3 sheet. What is the difference between their predictions and the actual flight distance? Which team's prediction was closest to the actual distance travelled? Which rocket travelled the furthest? Examine what this rocket looked like.

**Tip.** You can also get the children to race their rockets against each other. You will need to make a number of flight paths next to each other for this.



## Fast, faster, fastest

1 *Build your own rocket*



You are going to make a rocket.

1 First of all, design the fins.

Draw them in the box below.

draw your design for the rocket fins HERE



2 Blow up the balloon

3 Use a clothes peg to close the opening so the air does not escape.

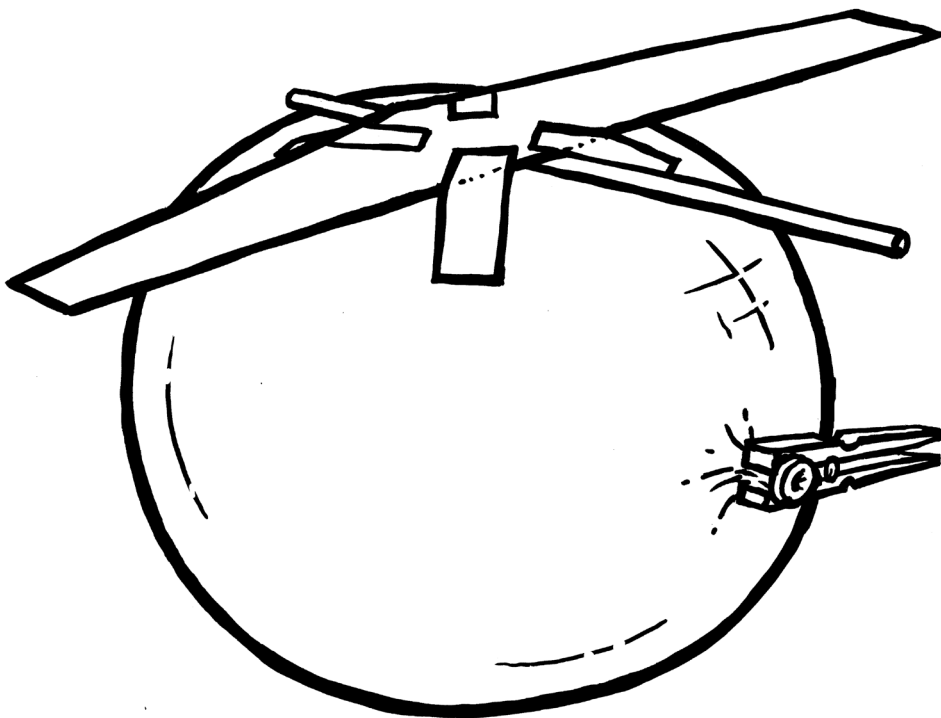
4 Now attach the straw to the balloon using sticky tape.

Take a good look at the drawing.

5 Cut two fins out of the cardboard, using your own design on the worksheet.

6 Attach the fins to the balloon as shown.

Your rocket is ready!



write the name of your rocket HERE

Give your rocket a name.

The name of my rocket is: \_\_\_\_\_

7 Thread the fishing line through the straw.



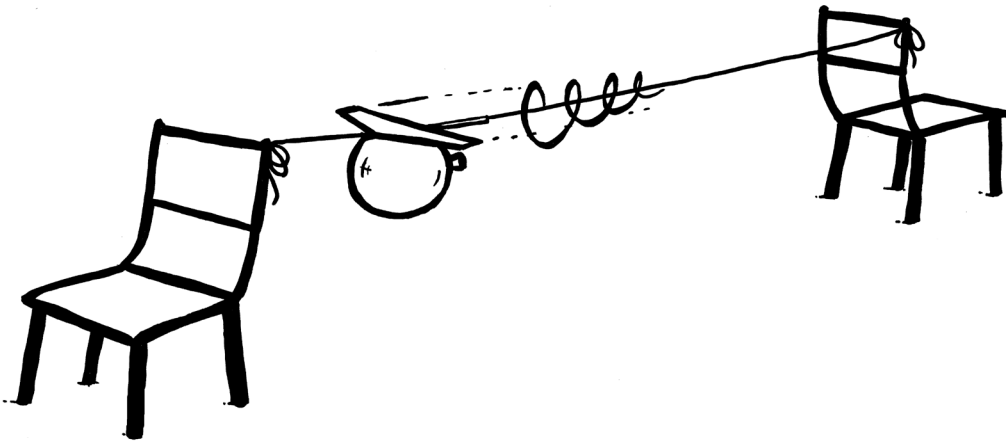
Then tie the end of the line to the chair.

8 Pull the balloon to the chair at the beginning of the track.

The opening must be facing towards the chair.

9 Remove the clothes peg and stand back. How far did your rocket travel?

10 Can you make your rocket go any further? Try it and see!



2 Rocket race



Launch 1

Launch 2

Launch 3

Launch 4

**Team A**

Prediction

write the times HERE

Actual distance

Difference

**Team B**

Prediction

Actual distance

Difference

**Team C**

Prediction

Actual distance

Difference

**Team D**

Prediction

Actual distance

Difference

**Team E**

Prediction

Actual distance

Difference

Launch 1

Launch 2

Launch 3

Launch 4

**Team F**

Prediction				
Actual distance				
Difference				

write the times HERE

**Team G**

Prediction				
Actual distance				
Difference				

**Team H**

Prediction				
Actual distance				
Difference				

**Team I**

Prediction				
Actual distance				
Difference				

**Team J**

Prediction				
Actual distance				
Difference				

**Team K**

Prediction				
Actual distance				
Difference				

**Team L**

Prediction				
Actual distance				
Difference				