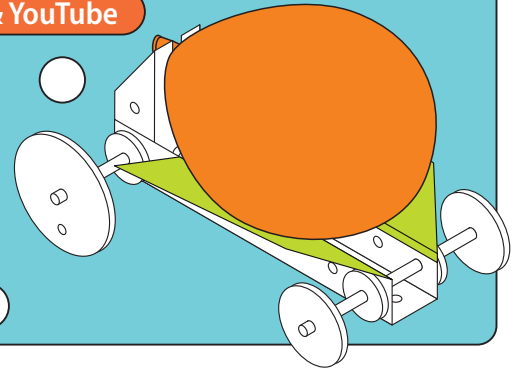




Visit TechCard at techcard.co.uk & Instagram & YouTube

Balloon Racer

Power-it Kit Skill Level ●●●○○



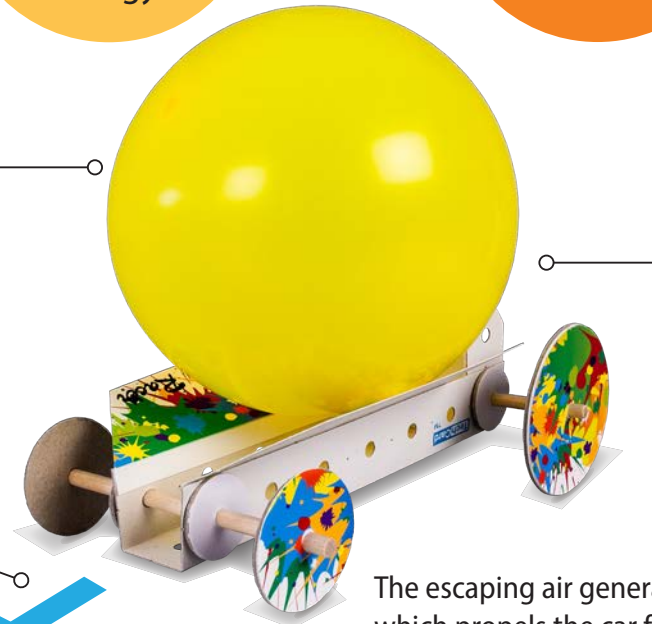
Build a high speed balloon powered racer propelled by moving air!

Explore how the elastic material turns air into potential energy.

See how to make with TechCard on our website.

The balloon is a battery of stored energy.

The car continues forward after the balloon empties due to momentum.



The escaping air generates thrust which propels the car forward.

[Assembly videos on YouTube!](#)

Parts to make 1 model			
Structural Parts		Mechanical Parts	
TechCard Beam	1	25mm Disc	4
		40mm Wheel	2
		60mm Wheel	2
		300mm Dowel Axle	1
Additional Materials			
Balloon x 1			
A5 Size Thin Card			
You will have parts left over towards other models.			

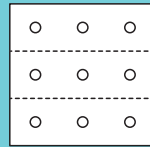
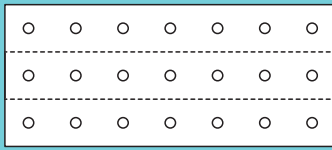
Parts to make 10 models			
Structural Parts		Mechanical Parts	
TechCard Beam	10	25mm Disc	40
		40mm Wheel	20
		60mm Wheel	20
		300mm Dowel Axle	10
Additional Materials			
Balloon x 10			
A5 Size Thin Card x 10			
Based on pupils sharing off-cuts between them.			

Make the Balloon Racer

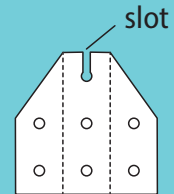
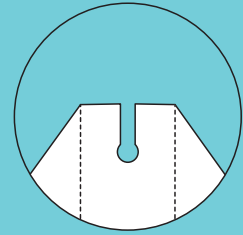


Before you start see
'Make with TechCard'
on our website.

1 Prepare the chassis.



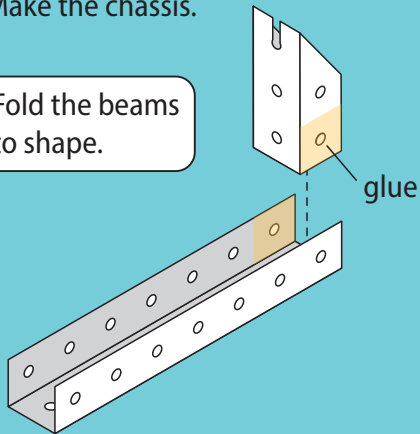
Cut a 175mm beam and a
75mm beam from a beam.



Cut the 75mm beam to shape
and cut a slot as shown.

2 Make the chassis.

Fold the beams
to shape.



Glue the 75mm beam
into the end of the 175mm beam
as shown.

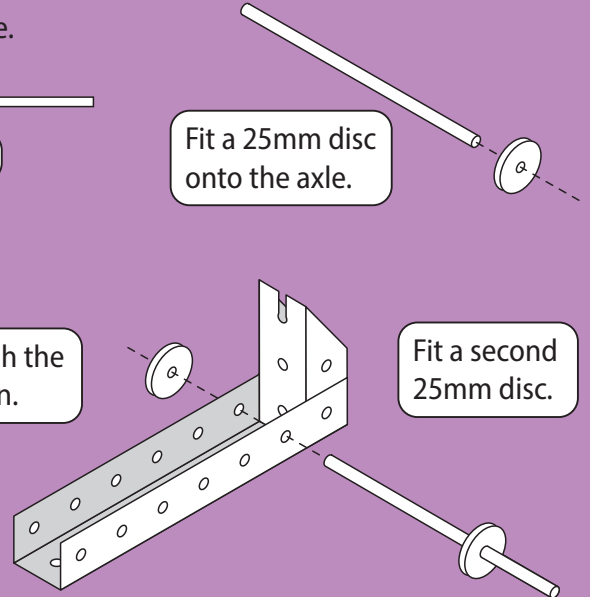
3 Fit the rear axle.

Cut a 200mm axle.

Fit a 25mm disc
onto the axle.

Pass the axle through the
chassis where shown.

Fit a second
25mm disc.



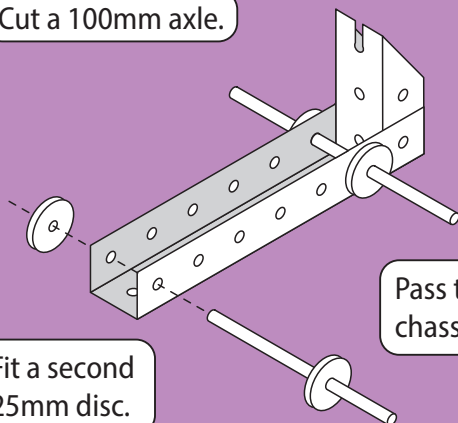
4 Fit the front axle.

Cut a 100mm axle.

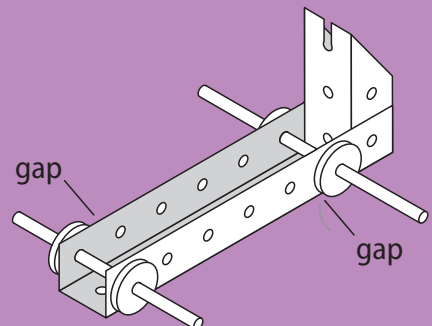
Fit a 25mm disc
onto the axle.

Pass the axle through the
chassis where shown.

Fit a second
25mm disc.

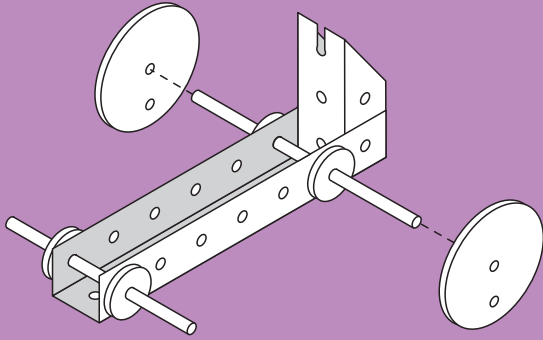


5 Check the axles.



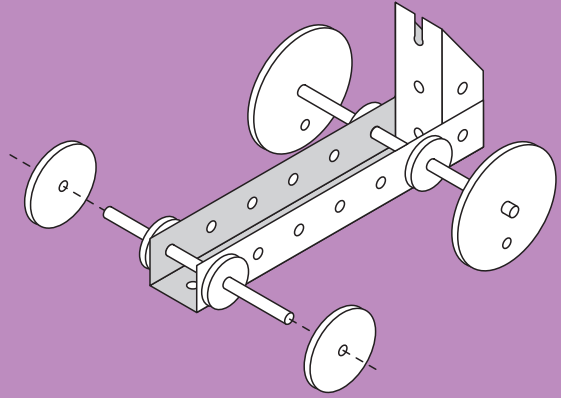
Check the axles are centred and there is a
gap between the discs and the chassis so
the axles turn easily.

6 Fit the rear wheels.



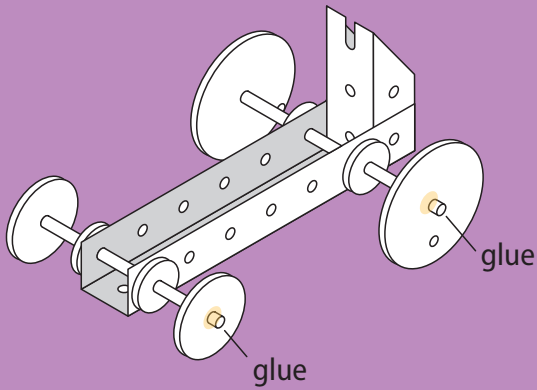
Fit two 60mm wheels to the ends of the rear axle.

7 Fit the front wheels.



Fit two 40mm wheels to the ends of the front axle.

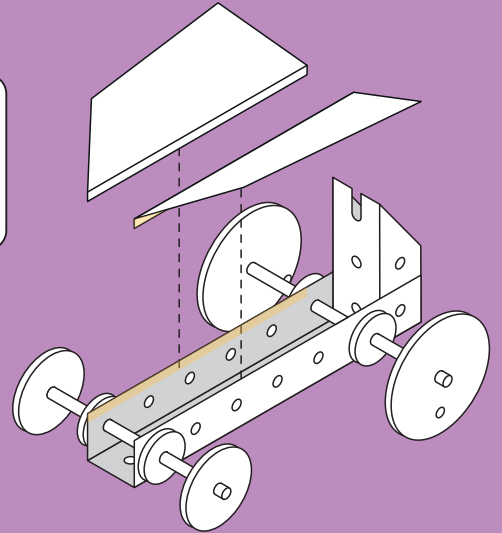
8 Glue the wheels.



Check the wheels are straight and glue.

9 Finish the model.

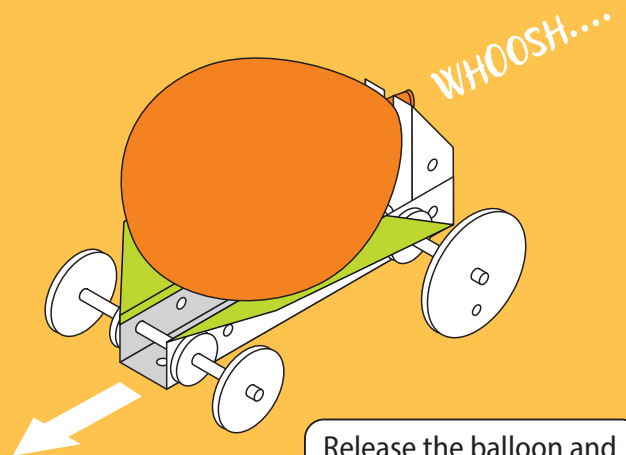
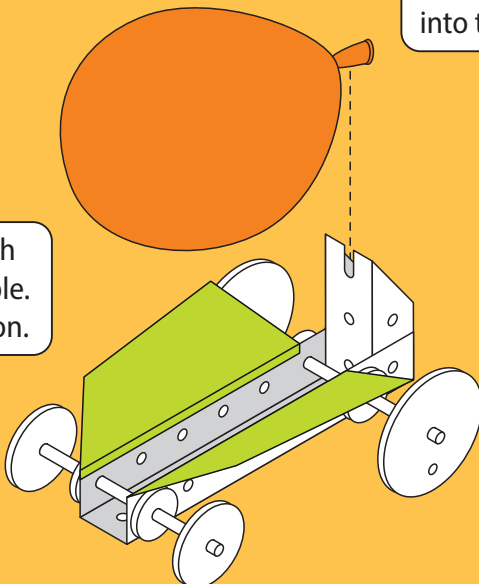
Cut, fold and glue the panels into position.



10 Operate your Balloon Racer!

Use two hands to pinch and stretch the neck of the balloon and lower it into the slot as shown.

Race on a smooth floor or large table. Inflate the balloon.



Release the balloon and the car will race forward!

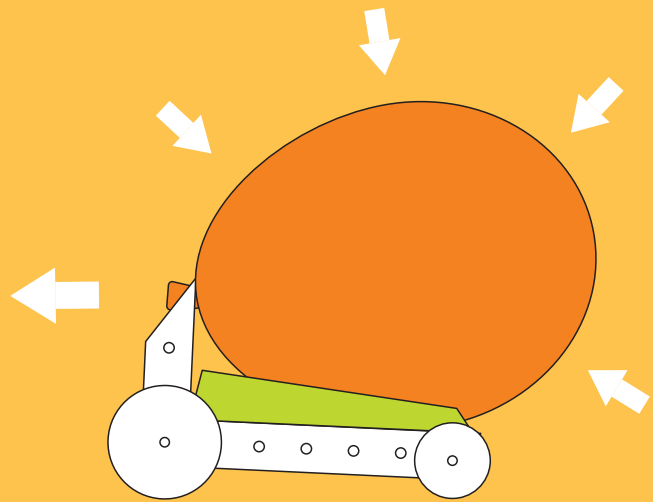
11 How it works!

As you inflate the balloon, the rubber material stretches and the balloon gets bigger.

The balloon material tries to return to its original size and presses on the air inside.

The air inside is 'under pressure' and when the nozzle is released it rushes to escape the balloon.

The fast moving air creates 'thrust' which propels the car forward.



Card Panels

Print and cut along the solid lines and fold along the dotted lines of the panels.

