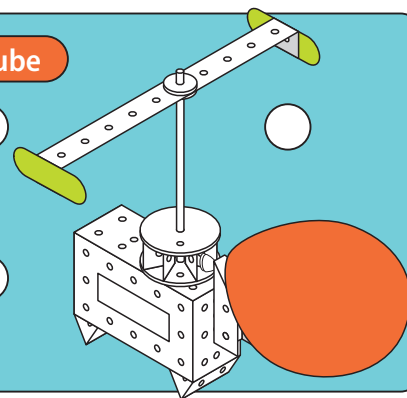




Visit TechCard at techcard.co.uk & Instagram & YouTube

Air Power Ride

Power-it Kit Skill Level ●●●●○



Build a high speed turbine powered fairground ride!

Explore how elastic materials can store energy and make things move.

See how to make with TechCard on our website.

The balloon is like a battery of stored energy.

The elastic material of the balloon puts the air inside under pressure.

The force of the escaping air causes the turbine to spin.



Assembly videos on YouTube!

Parts to make 1 model

Structural Parts

TechCard Strip	1
TechCard Girder	1
TechCard Beam	1
TechCard Project Base	1

Mechanical Parts

25mm Disc	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

TechCard Strip	10
TechCard Girder	10
TechCard Beam	10
TechCard Project Base	10

Mechanical Parts

25mm Disc	20
60mm Wheel	40
300mm Dowel Axle	10

Additional Materials

Balloon x 10
A5 Size Thin Card x 10

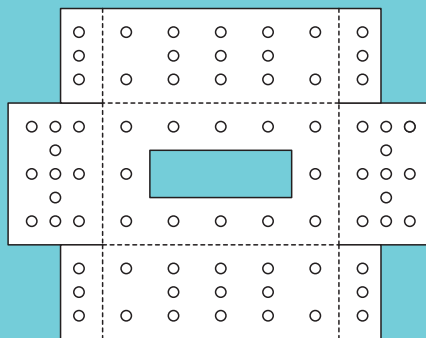
Based on pupils sharing off-cuts between them.

Make the Air Power Ride

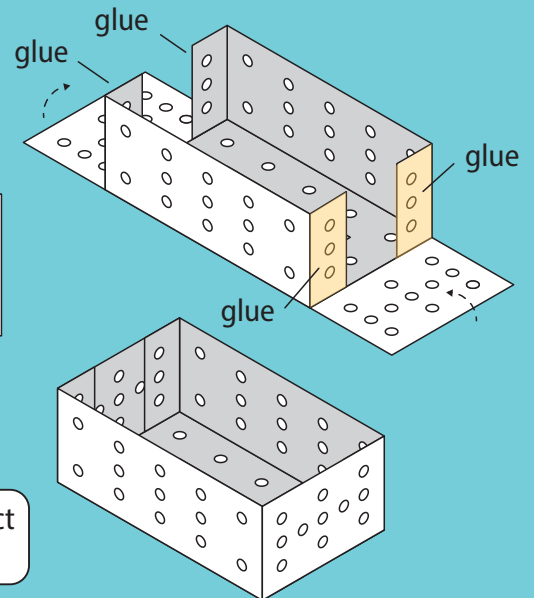


Before you start see
'Make with TechCard'
on our website.

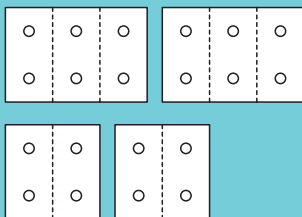
1 Make the base.



Fold and glue a TechCard Project Base to make the base.

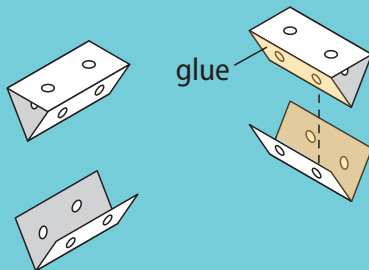


2 Make the feet.

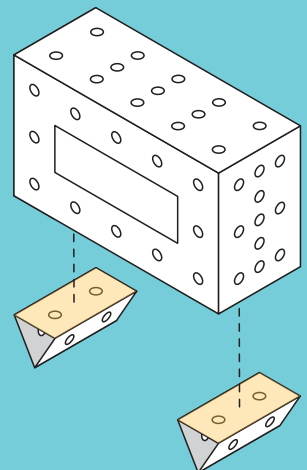


Cut two 50mm beams
and two 50mm girders.

Fold and glue the
girders and beams
to make two feet.

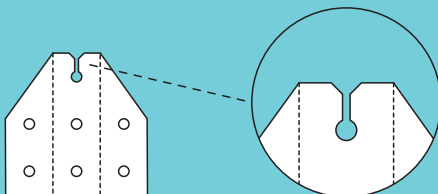


3 Fit the feet.



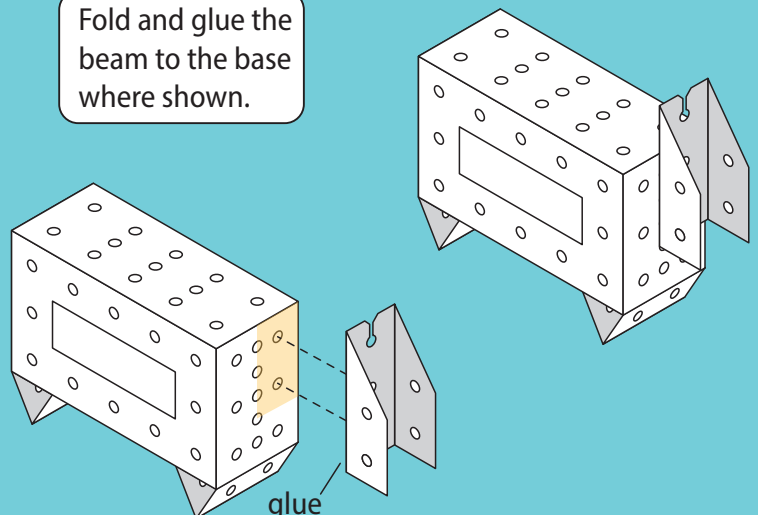
Glue the feet
under the base
where shown.

4 Make the balloon support.

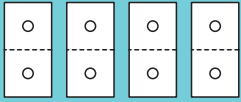


Cut a 75mm beam to
the shape shown. Cut
a narrow slot down
to the first hole.

Fold and glue the
beam to the base
where shown.

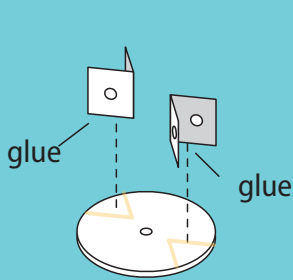


5 Make the turbine.

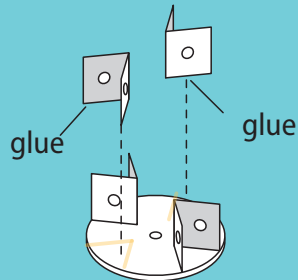


Cut four 25mm girders.

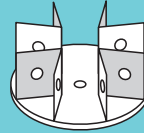
Use the template on the last page of these instructions to help assemble the turbine.



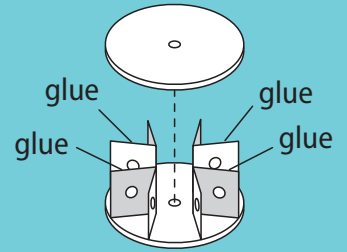
Fold and glue two girders to a 60mm wheel as shown.



Fold and glue two more girders to wheel as shown.



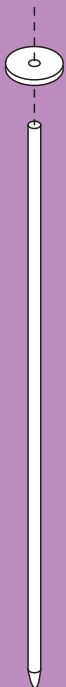
The girders should be opposite each other.



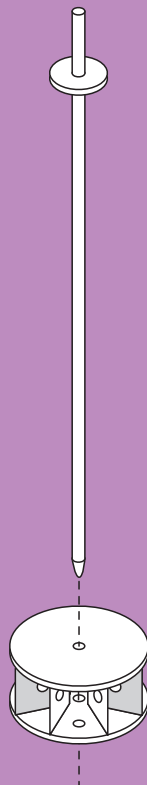
Glue a second 60mm wheel to the top of the girders.

6 Fit the axle.

Fit 25mm disc onto a 300mm axle.



Put a dull point on the end of the dowel.

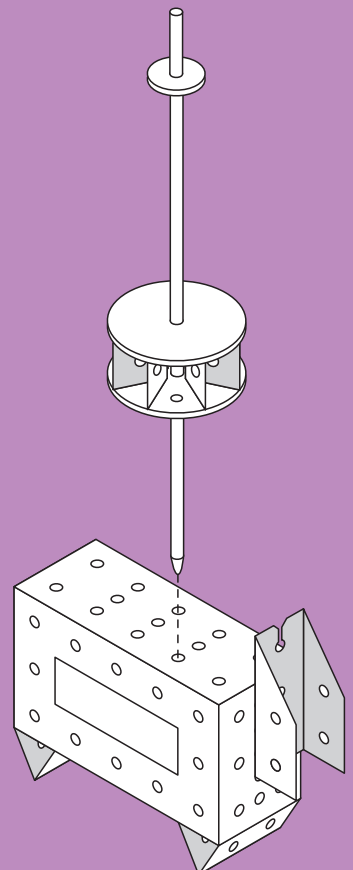


Fit the dowel through the turbine.

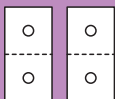
7 Fit the turbine.

Fit the axle through the base where shown.

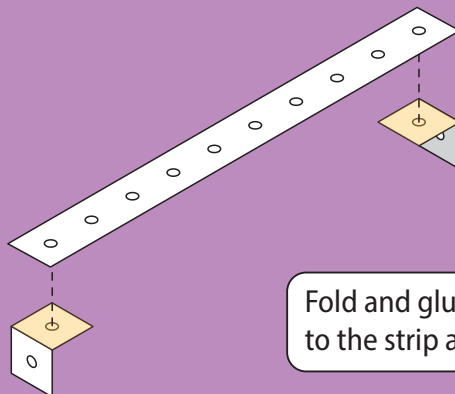
The axle should rest on the table top. The turbine should be 5mm above the top of the base.



8 Make the arm.

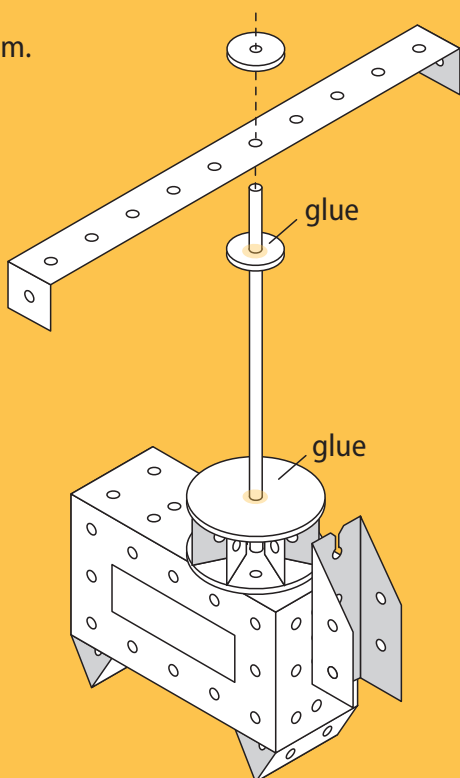


Cut a 225mm strip and two 25mm girders.



Fold and glue the girders to the strip as shown.

9 Fit the arm.

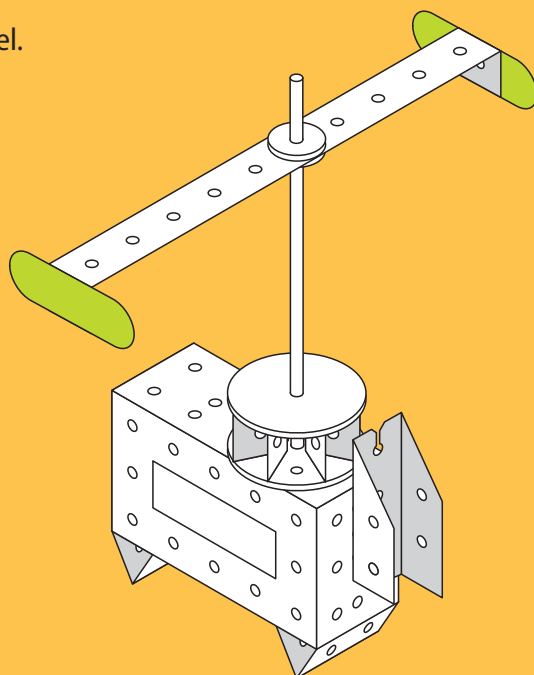


Position the 25mm disc near the top of the axle.

Check the position of the turbine and glue the turbine and disc to the axle.

Fit the arm onto the axle and fit a 25mm disc.

10 Finish your model.



Cut and glue the body panels onto the model.

Check the mechanism moves smoothly.

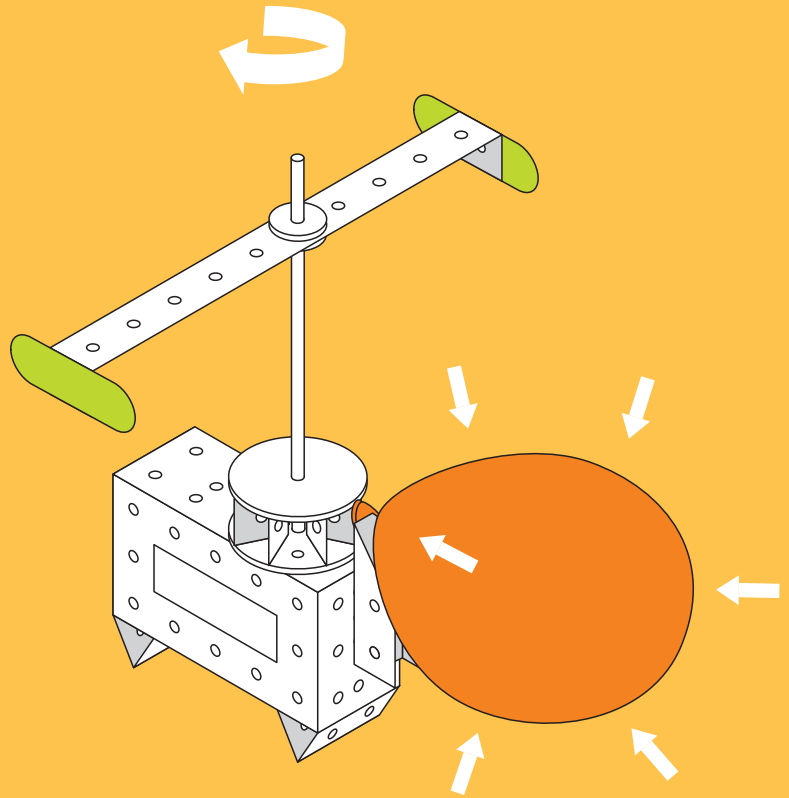
11 Operate your Air Power Ride!

Inflate the balloon and the rubber material stretches. The material is 'elastic' and tries to return to its original size. This puts the air inside under pressure.

The inflated balloon is like a battery and is full of 'potential energy'.

When the nozzle is released the pressurized air rushes out generating a force called thrust.

The thrust is directed at the turbine which is moved by the force of the passing air.



Card Panels

Print and cut along the solid lines of the two panels.

25mm

25mm

