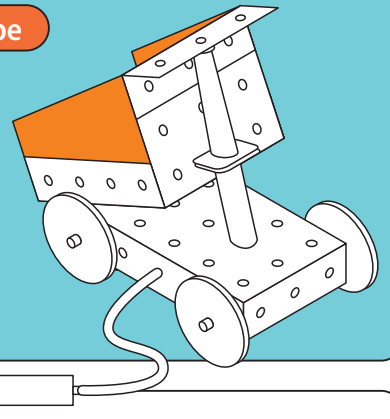




Visit TechCard at techcard.co.uk & Instagram & YouTube

Pneumatic Tipper

Power-it Kit Skill Level ●●●○○

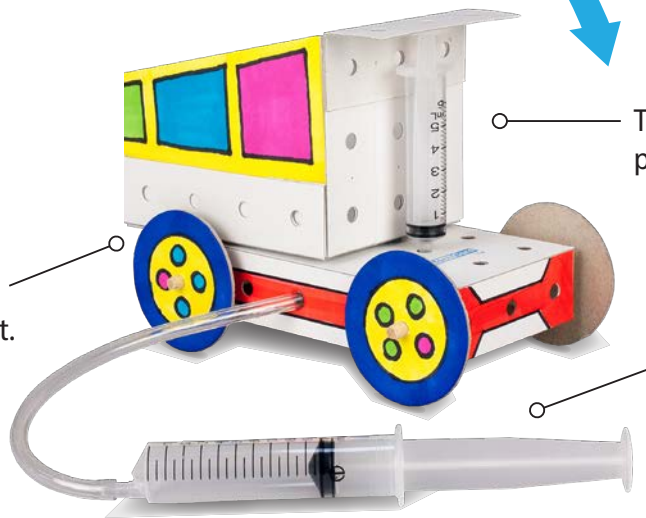


Build a working tipper truck that uses pneumatic pistons!

Explore wheels and axles, winders, hinges and strong shapes.

See how to make with TechCard on our website.

A hinge is used to control the movement of the bucket.



The moving air pushes this piston open raising the bucket.

Closing the piston pushes air along the system.

★ Assembly videos on YouTube!

Parts to make 1 model

Structural Parts

TechCard Girder	1
TechCard Beam	1
TechCard Base	2

Mechanical Parts

50mm Wheel	4
300mm Dowel Axle	1

Additional Materials

5ml Syringe x 1	A5 Size Thin Card x 1
10ml Syringe x 1	Small Sticky Foam Pad x 1
200mm Plastic Tube x 1	

You will have parts left over towards other models.

Parts to make 10 models

Structural Parts

TechCard Girder	10
TechCard Beam	5
TechCard Base	20

Mechanical Parts

50mm Wheel	40
300mm Dowel Axle	8

Additional Materials

5ml Syringe x 10	A5 Size Thin Card x 10
10ml Syringe x 10	Small Sticky Foam Pad x 10
200mm Plastic Tube x 10	

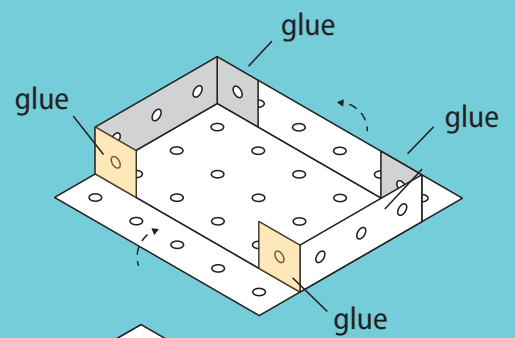
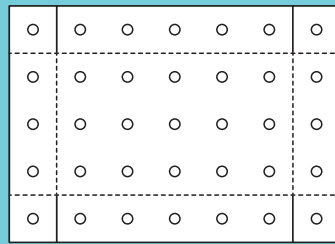
Based on pupils sharing off-cuts between them.

Make the Pneumatic Tipper

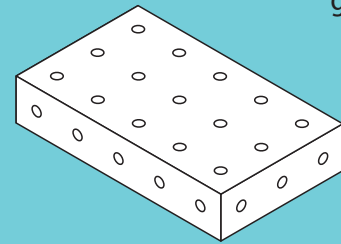


Before you start see
'Make with TechCard'
on our website.

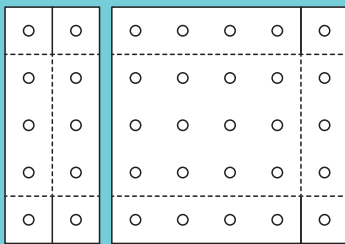
1 Make the chassis.



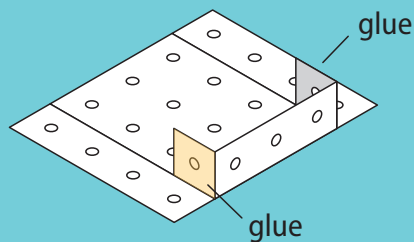
Fold and glue a TechCard
base to make the chassis.



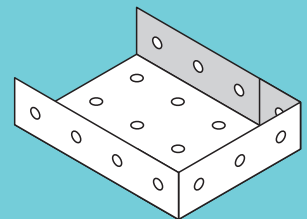
2 Make the tipping section.



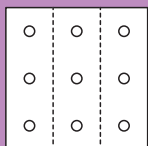
Cut a section from a
second TechCard base.



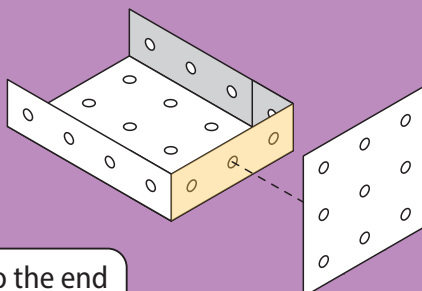
Fold and glue the
base as shown.



3 Fit the front panel.

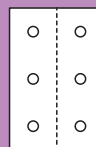


Cut a 75mm beam.

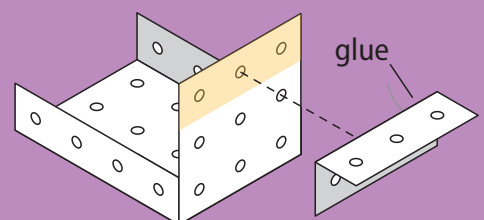


Glue the beam to the end
of the base as shown.

4 Fit the top panel.

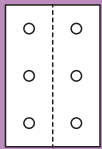


Cut a 75mm girder.

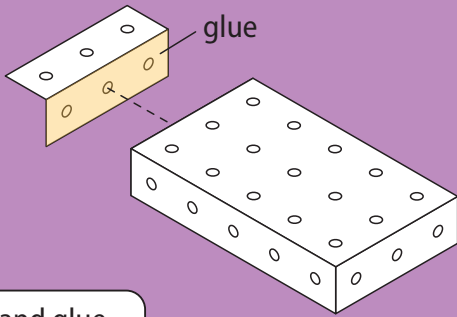


Fold the girder and glue
to the beam as shown.

5 Fit the rear hinge.

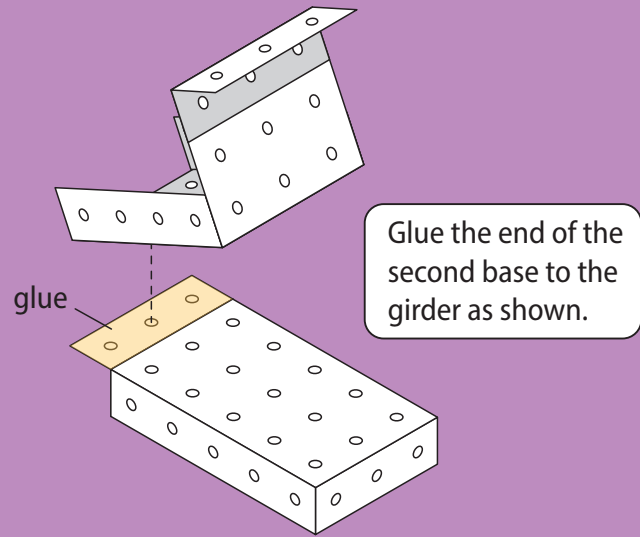


Cut a 75mm girder.



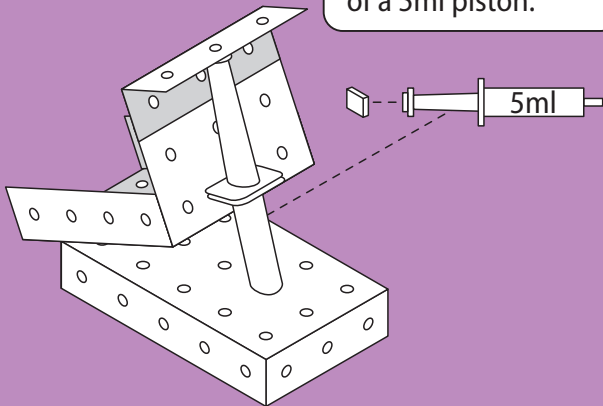
Fold the girder and glue to the first base as shown.

6 Fit the tipping section.



7 Fit the piston.

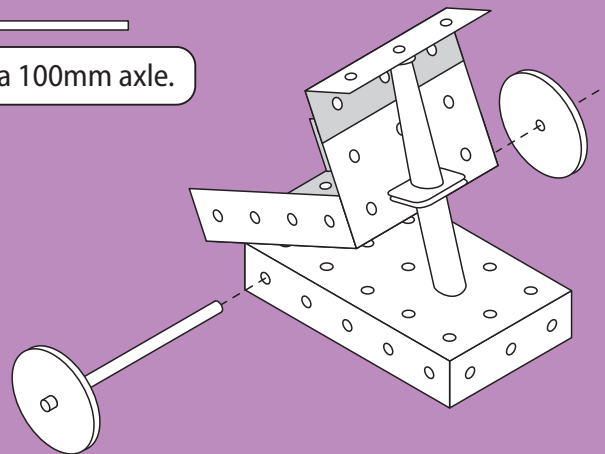
Trim a sticky foam pad to fit the plunger of a 5ml piston.



Fit the nozzle of the piston through the base as shown. Fix the plunger to the girder.

8 Fit the rear wheels.

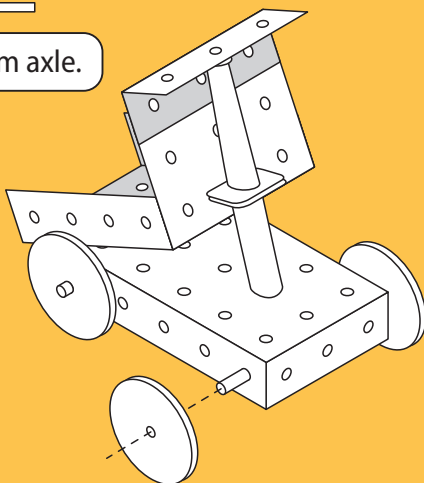
Cut a 100mm axle.



Fit a 50mm wheel to the end of the axle. Pass the axle through the chassis and fit a second 50mm wheel.

9 Fit the front wheels.

Cut a 100mm axle.

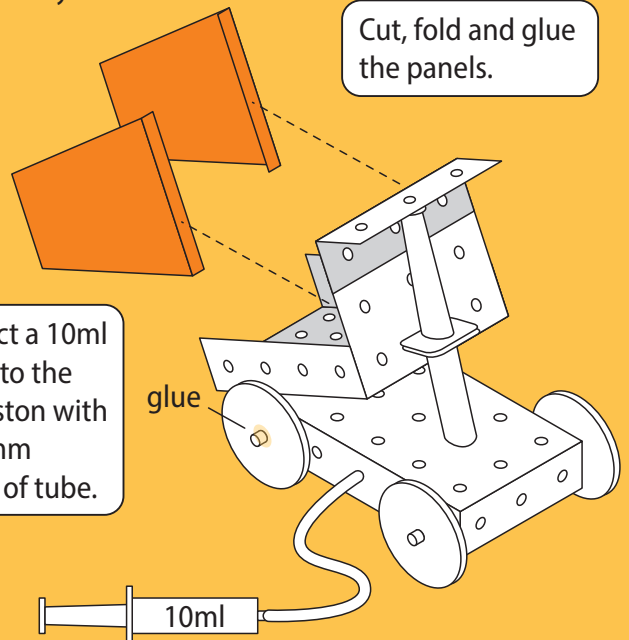


Fit the front wheels and axle in the same way.

10 Finish your model.

Cut, fold and glue the panels.

Connect a 10ml piston to the 5ml piston with a 200mm length of tube.



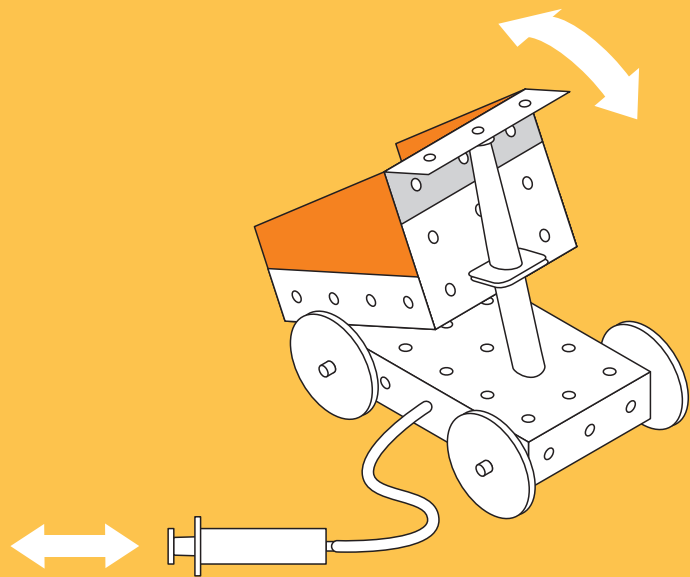
11 Operate your Tipper Truck.

Adjust the pistons so when you close the larger control piston the bucket of the tipper truck will rise. Open the control piston and the bucket will lower.

The pneumatic system uses air to transmit force.

Real earth moving machines use oil filled hydraulic systems as the oil does not compress or squash as much as air.

Pneumatic systems are used for finer machines where speed and precision are more important than power.



Card Panels

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

25mm

25mm