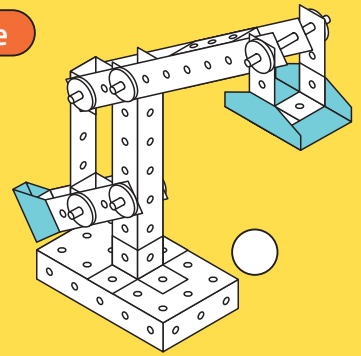




Visit TechCard at techcard.co.uk & Instagram & YouTube

Lever Hoist

Build-it Kit Skill Level ●●●●○



Build a hoist and discover how to move objects efficiently!

Explore mechanisms like pivots, levers and linkages.

See how to make with TechCard on our website.

The hoist uses 'pivots' to allow movement.

The handle and the boom are both levers.

The levers increase the distance the force travels so the load travels further than the handle.



Assembly videos on YouTube!

Parts to make 1 model

Structural Parts

TechCard Strip	3
TechCard Girder	1
TechCard Beam	2
TechCard Base	1

Mechanical Parts

25mm Disc	10
300mm Dowel Axle	1

Additional Materials

A5 Size Thin Card x 1

You will have parts left over towards other models.

Parts to make 10 models

Structural Parts

TechCard Strip	30
TechCard Girder	5
TechCard Beam	8
TechCard Base	10

Mechanical Parts

25mm Disc	100
300mm Dowel Axle	10

Additional Materials

A5 Size Thin Card x 10

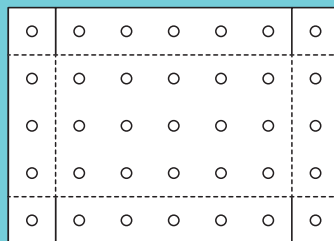
Based on pupils sharing off-cuts between them.

Make the Lever Hoist

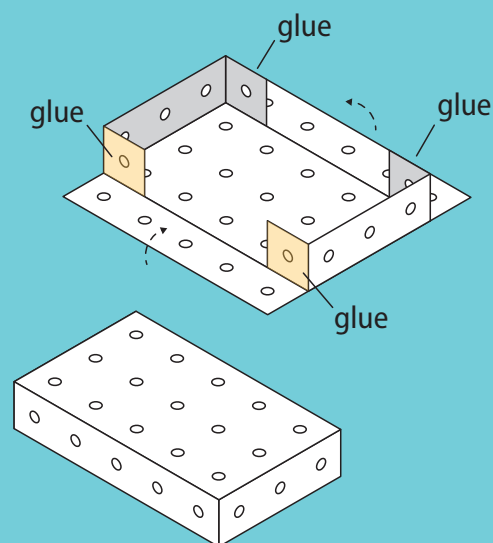


Before you start see
'Make with TechCard'
on our website.

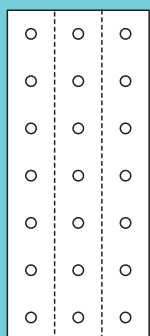
1 Make the base.



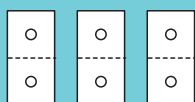
Fold and glue a
TechCard base.



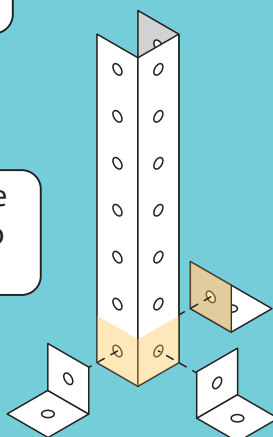
2 Make the tower.



Cut a 175mm beam and
three 25mm girders.

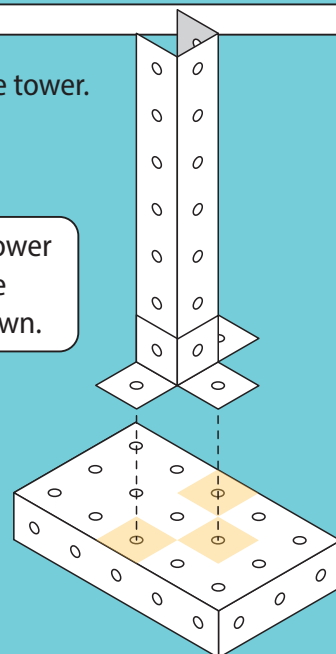


Fold and glue
the girders to
the beam.



3 Fit the tower.

Glue the tower
to the base
where shown.



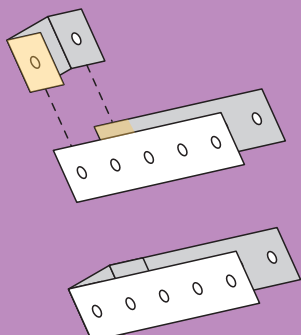
4 Make the handle.



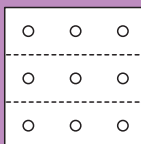
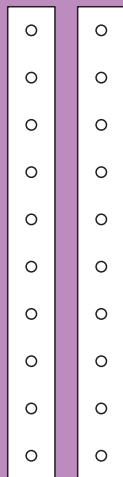
Fold and glue the
beam into the strips.



Cut two 125mm
strips and one
25mm beam.

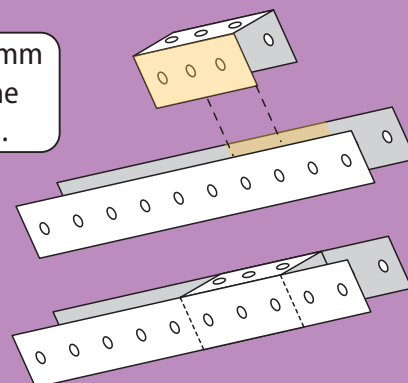


5 Make the boom.



Cut two 250mm
strips and one
75mm beam.

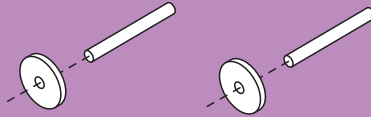
Fold and glue the
beam into the strips
where shown.



6 Fit the boom and handle.

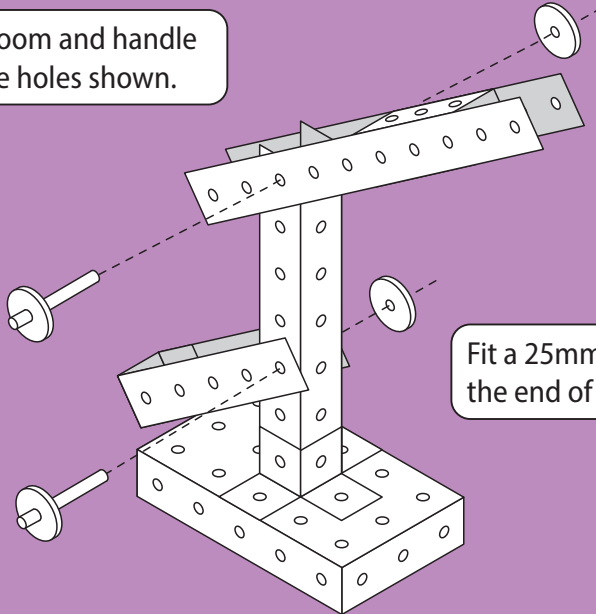


Cut two 50mm axles.



Fit a 25mm disc to one end of each.

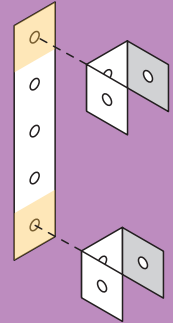
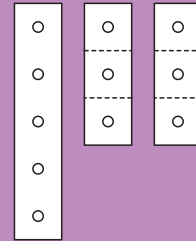
Fit the boom and handle using the holes shown.



Fit a 25mm disc to the end of the axles.

7 Make the linkage.

Cut one 125mm strip and two 25mm beams.



Fold and glue the beams to the strip where shown.

8 Fit the linkage.

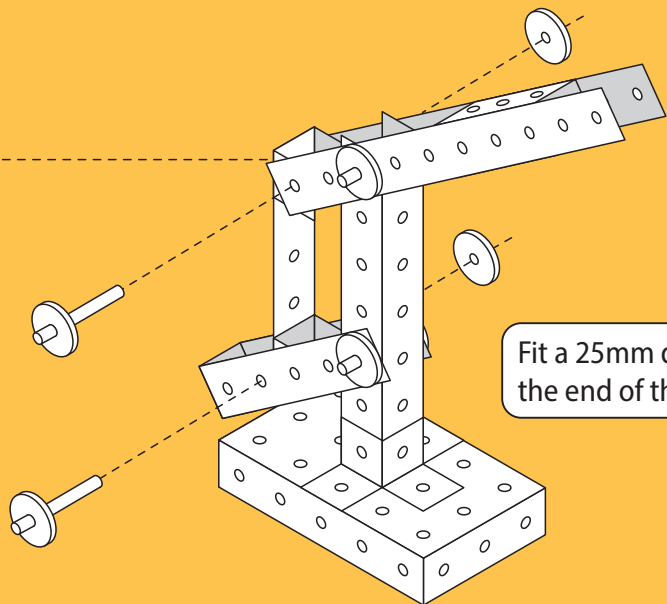


Cut two 50mm axle.



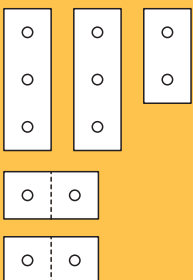
Fit a 25mm disc to one end of each.

Fit the axles through the handle, boom and linkage as shown.



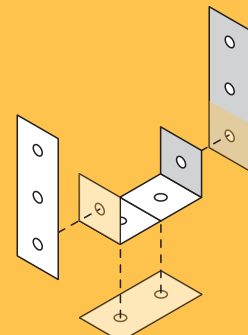
Fit a 25mm disc to the end of the axles.

9 Make the cradle.



Cut two 75mm strips, one 50mm strip and two 25mm girders.

Fold the girders and glue to the strips as shown to form the cradle.

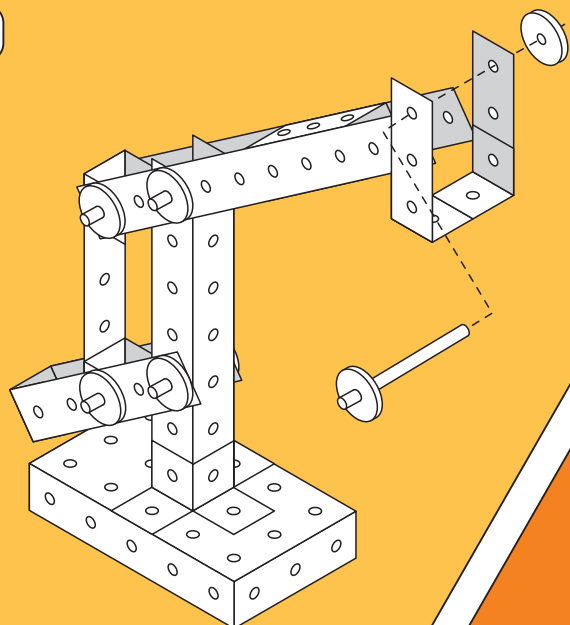


10 Fit the cradle.

Cut a 75mm axle.



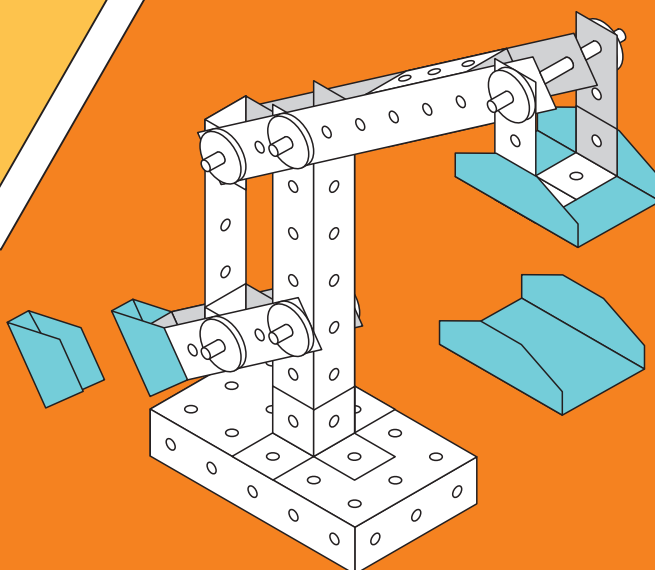
Fit a 25mm disc to one end.



Pass the axle through the cradle and boom and fit a 25mm disc to the end.

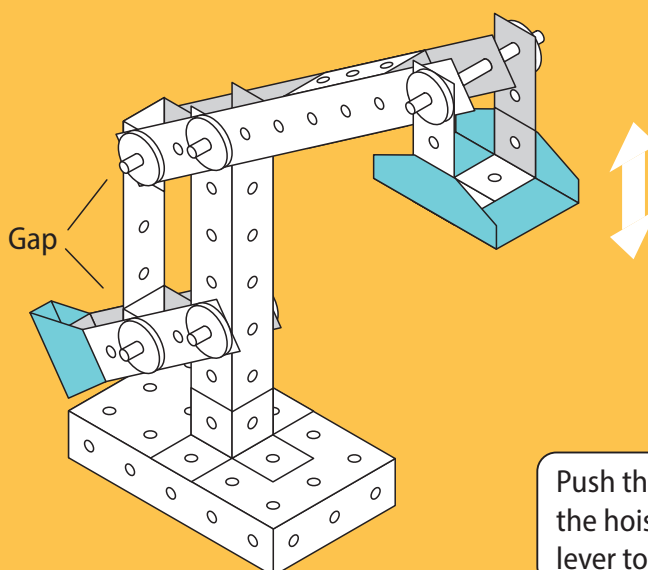
11 Finish the model.

Print or copy the panels. Cut out, fold and glue in place.



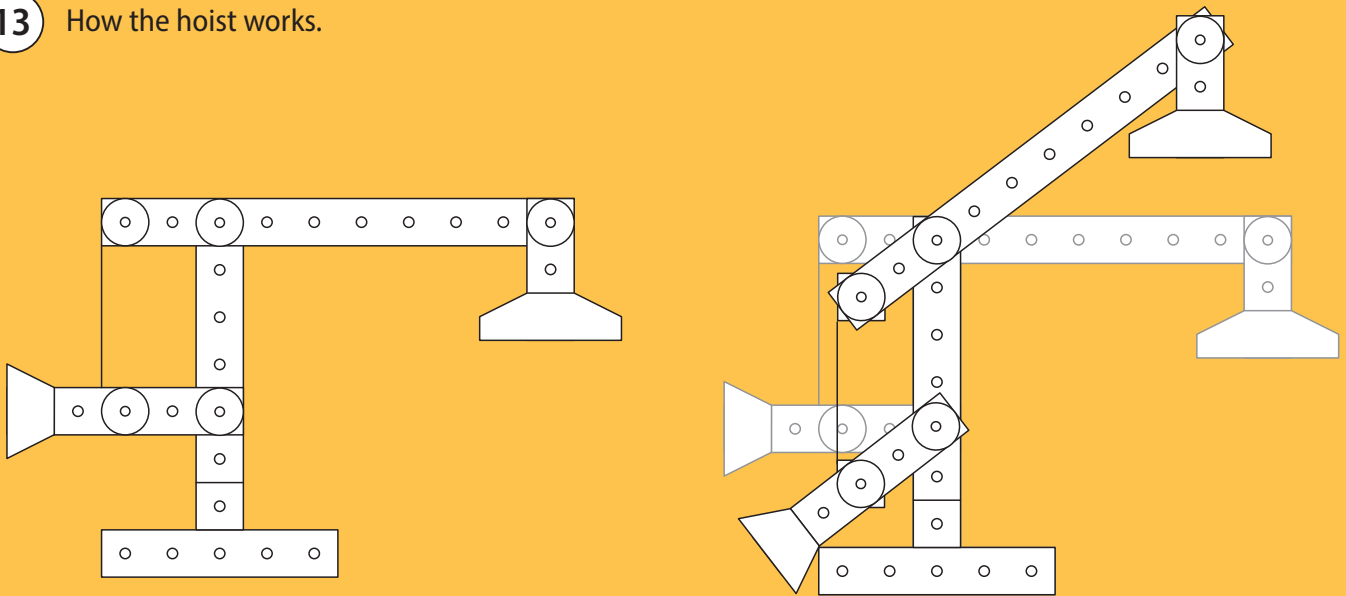
12 Operate your hoist.

Check there are gaps between the 25mm discs and the mechanism so everything moves freely.



Push the lever down and the hoist will rise. Raise the lever to lower the hoist.

13 How the hoist works.



Pushing down on the lever raises the hoist. Both the handle and the boom are set up as levers. The point where they pivot on the tower is the fulcrum.

The fulcrum on the boom is much closer to the end where the force is applied. As a result, the end of the boom with the pan travels much further than the force applied to the other end of the boom. The lever is increasing the distance the force travels.

Card Panels

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

25mm
25mm