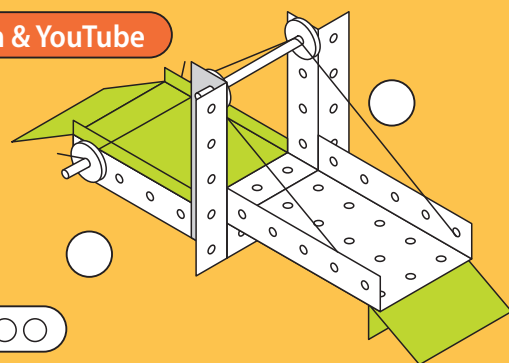




Visit TechCard at techcard.co.uk & Instagram & YouTube

Drawbridge

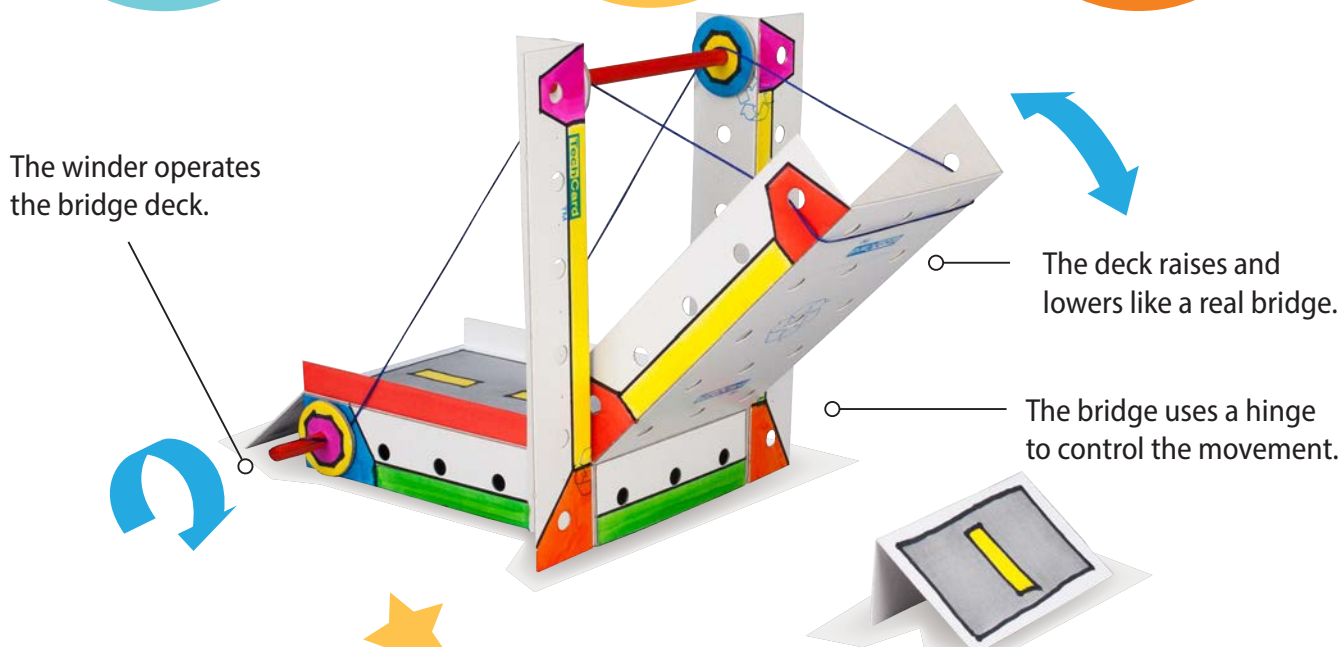
Make and Create: Skill Level ● ● ● ○ ○



Build a Drawbridge and see how we can harness the force of gravity.

Explore hinges and winders & see how materials can transfer force.

See how to make with TechCard on our website.



Assembly videos on YouTube!

Parts to make 1 model

Structural Parts

TechCard Girder	2
TechCard Base	2

Mechanical Parts

25mm Disc	4
100mm Dowel Axle	2

Additional Materials

600mm Thin String
A4 Size Thin Card

You will have parts left over towards other models.

Parts to make 10 models

Structural Parts

TechCard Girder	20
TechCard Base	20

Mechanical Parts

25mm Disc	40
300mm Dowel Axle	10

Additional Materials

6M Thin String
A4 Size Thin Card x 10

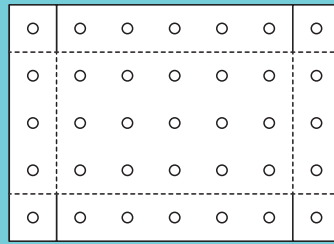
Based on pupils sharing off-cuts between them.

Make the Drawbridge

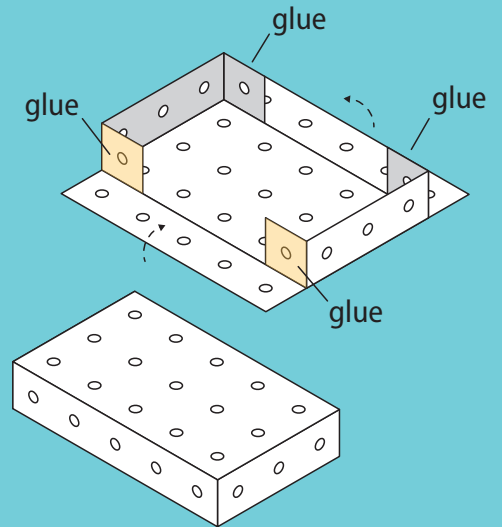


Before you start see
'Make with TechCard'
on our website.

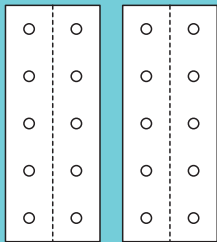
1 Make the base.



Fold and glue a
TechCard base.

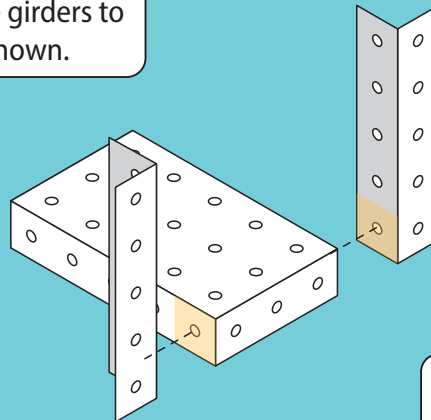


2 Fit the towers.



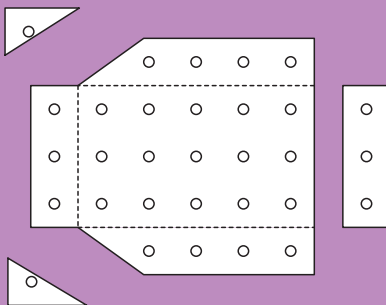
Cut two 125mm
girders.

Fold and glue the girders to
the base where shown.

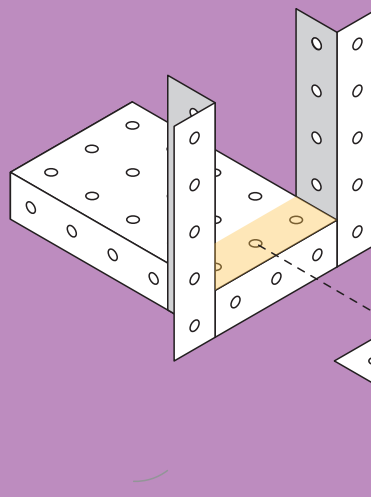


Check the girders
are straight.

3 Make the bridge.



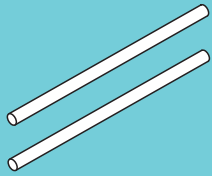
Cut a second base
as shown.



Fold the bridge
to shape.

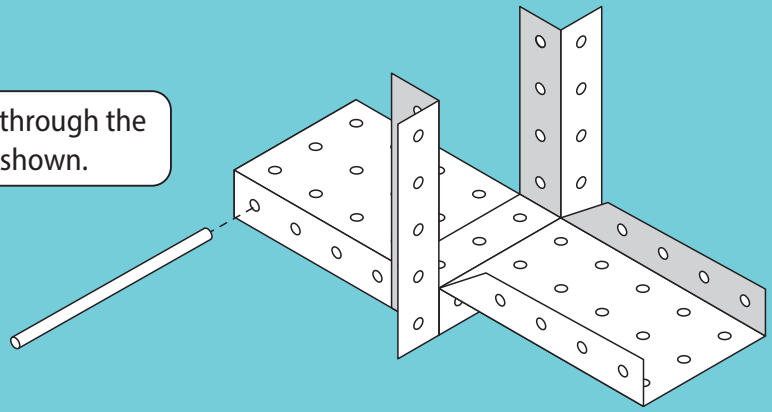
Glue the end panel of the
bridge onto the base as shown.

4 Fit the winder axle.



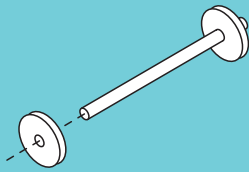
Cut two
100mm axles

Fit one axle through the
base where shown.

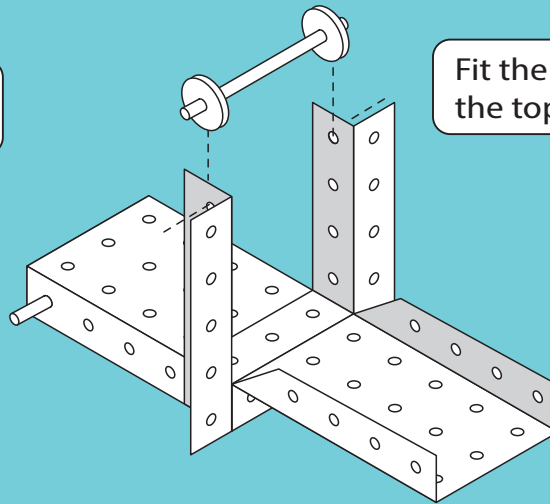


5 Fit the top axle.

Fit two 25mm discs onto
the ends of the second axle.

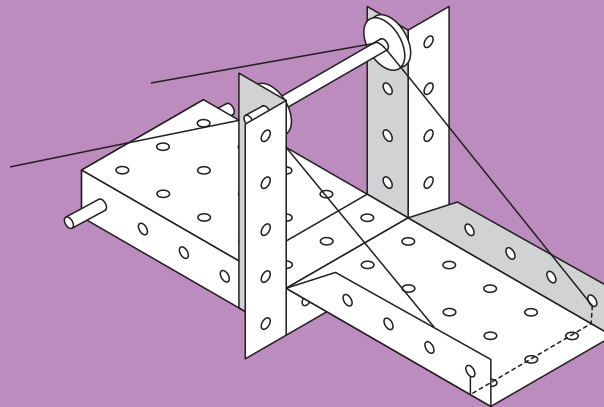


Fit the axle and discs into
the top of the girders as shown.



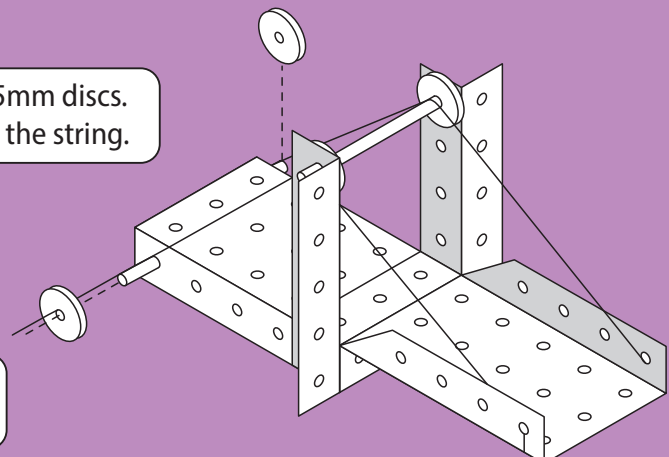
6 Fit the string.

Carefully fit the string to the
bridge following the drawing.



7 Assemble the winder.

Pass the ends of the string through two 25mm discs.
Fit the discs to the ends of the axle to trap the string.



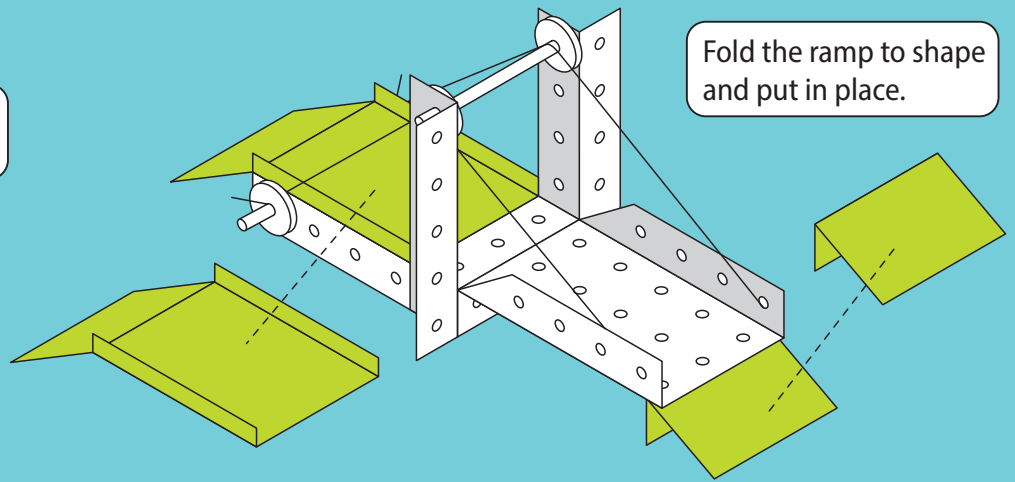
Adjust the string so it
is equal on both sides.

8 Finish the model.

Cut out the panels for the deck and ramp.

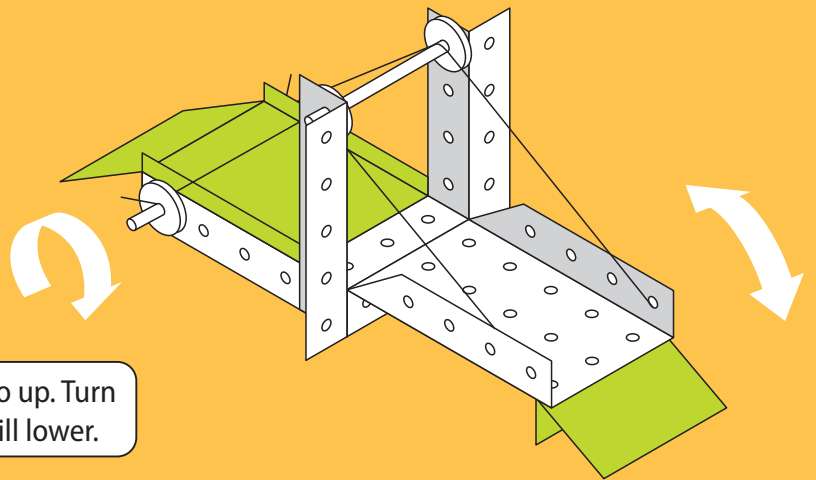
Fold the deck to shape and fit in place.

Fold the ramp to shape and put in place.

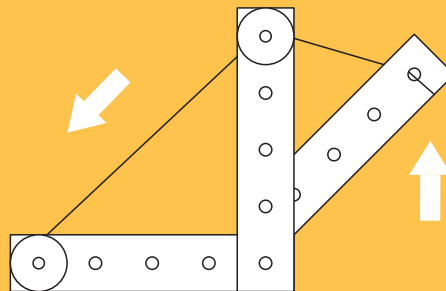


9 Operate the Draw Bridge!

Turn the winder and the draw bridge will go up. Turn the winder the other way and the bridge will lower.



10 How the bridge works.



Turning the winder creates a pulling force through the string. The string passes up and over the towers changing the direction of the pulling force. As a result, when the winder is turned, the bridge is pulled upward.

Turning the winder the other way lowers the bridge. The bridge drops because of the force of gravity acting on it and pushing it downwards. Gravity pushes the bridge downwards but its fall is controlled by the winder.

When raising the bridge, the pulling force is pulling against the force of gravity pushing down on the bridge.

Card Panels



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

25mm

25mm