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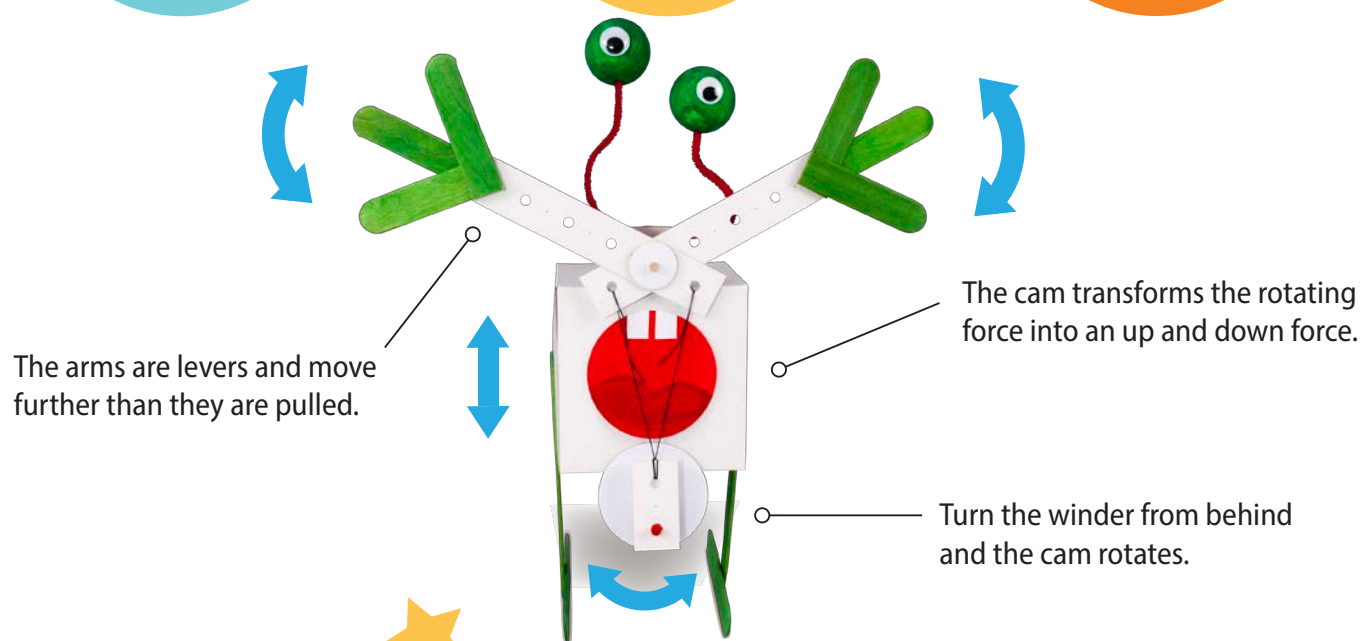
Waving Monster

Maker Pack: Skill Level ● ● ● ● ○

Upcycle a box to create a waving box monster!

Explore mechanisms like cams, levers and wheels and axles.

See how to make with TechCard on our website.



Assembly videos on YouTube!

Parts to make 1 model

Structural Parts

TechCard Strip	1
TechCard Beam	1

Mechanical Parts

25mm Disc	5
60mm Wheel	1
300mm Dowel Axle	2

Additional Materials

300mm thin string.
Upcycled box about 100mm x 100mm x 100mm.
Thin card, paints, pipe cleaners, lolly sticks, upcycled bottle tops and packaging.

You will have parts left over towards other models.

Parts to make 10 models

Structural Parts

TechCard Strip	10
TechCard Beam	10

Mechanical Parts

25mm Disc	50
60mm Wheel	10
300mm Dowel Axle	12

Additional Materials

3M thin string.
10 x Upcycled boxes about 100mm x 100mm x 100mm.
Thin card, paints, pipe cleaners, lolly sticks, upcycled bottle tops and packaging.

Based on pupils sharing off-cuts between them.

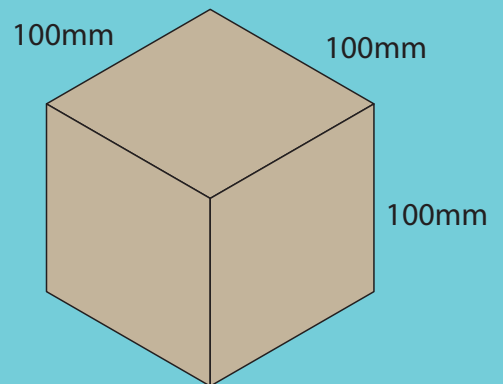
Make the Waving Monster



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

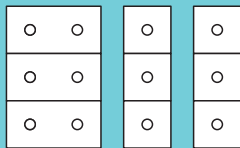
1 Choose your box.

This is the size
of our box.

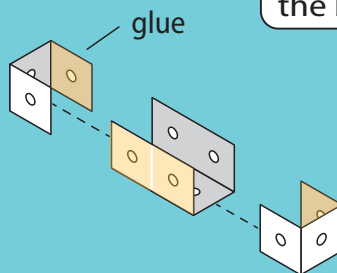


Use a small box with the
lid closed to keep it rigid.

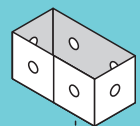
2 Make the top support.



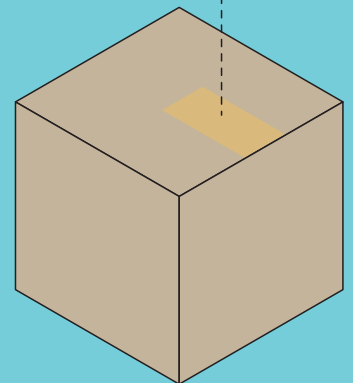
Cut one 50mm and
two 25mm beams.



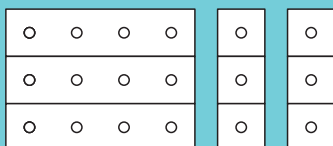
Glue the support onto
the box where shown.



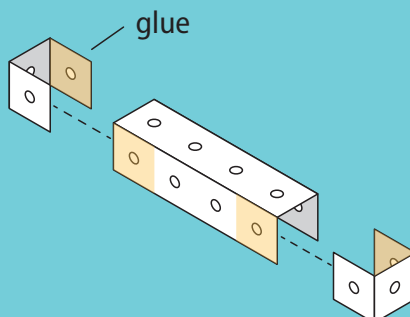
Fold and glue the beams
together as shown.



3 Fit the lower support.

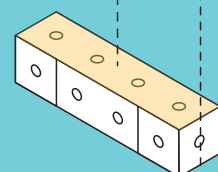
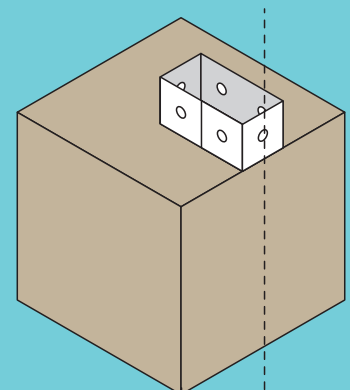


Cut one 50mm and
two 25mm beams.



Fold and glue the beams
together as shown.

Glue the support onto
the box where shown.

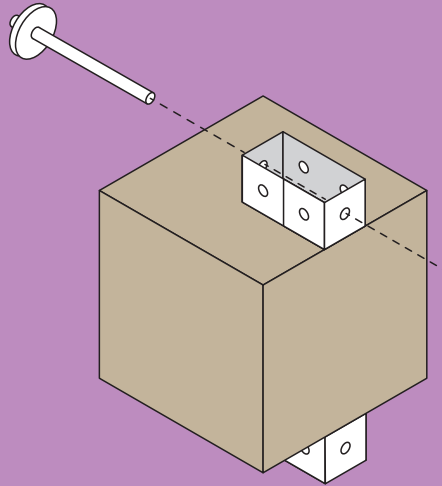


4 Fit the top axle.

Cut an 80mm axle.

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

Pass the axle through the support where shown.

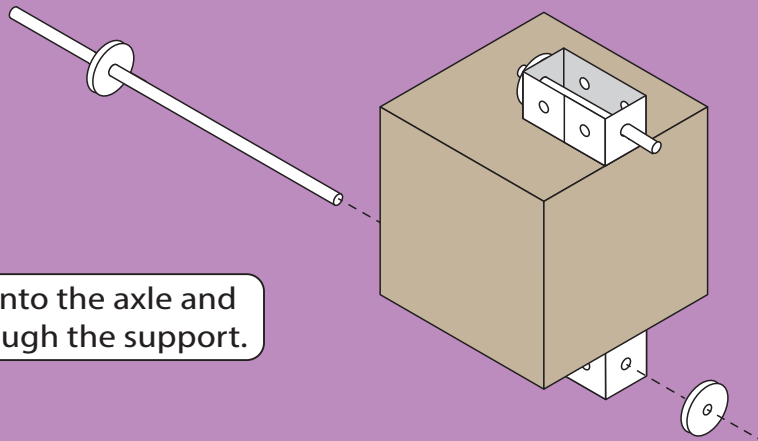


5 Fit the lower axle.

Cut a 200mm axle.

Fit a 25mm disc onto the axle and pass the axle through the support.

Fit a second 25mm disc onto the axle. The axle should stick out about 20mm.



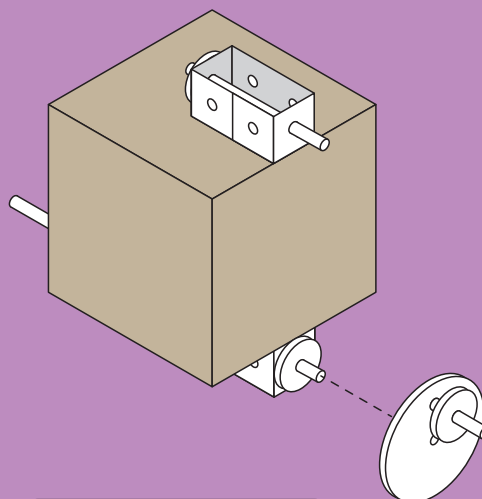
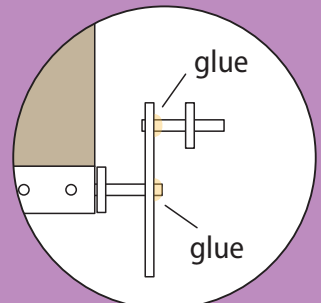
6 Fit the cam wheel.

Cut a 25mm axle.

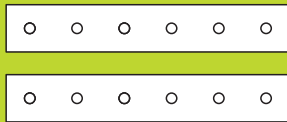
Fit a 25mm disc onto the dowel and glue the dowel into a 60mm wheel.

Fit the wheel onto the end of the axle.

Check the assembly and glue the axles.

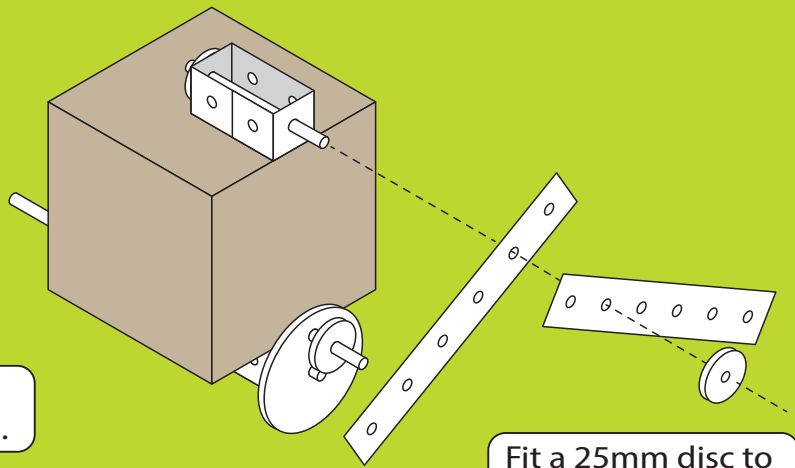


7 Fit the arms.



Cut two
150mm strips.

Fit the strips onto the top
axles through the holes shown.



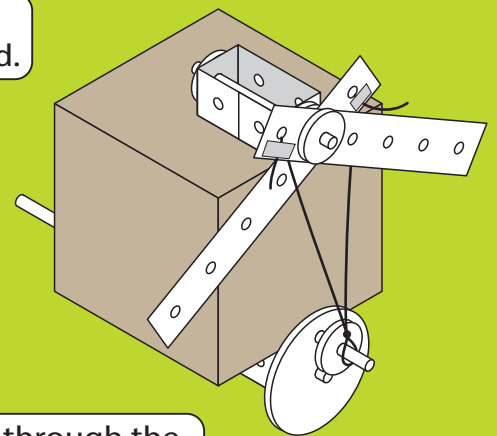
Fit a 25mm disc to
secure the strips.

8 Fit the string.



Position the arms downward
and the 60mm wheel upward.

Fit the loop over
the 25mm axle.



Tie a loop in the middle of
a 300mm piece of string.

Pass the ends of the string through the
end holes in the arms and fix with tape.

9 Operate your Waving Monster!

Use pipe cleaners, lolly sticks and upcycled
materials to make the model your own!

Turn the winder and the cam
rotates and pulls on the string.

The cam changes the rotating
force into an up and down force.

The arms are levers with the fulcrum at the
pivot point. The position of the fulcrum
means the arms travel much further than
they are pulled by the string.

