



# EPro8 Challenge

Engineer Problem Solve Innovate

## Getting Started



This activity is an introduction to your EPro8 Equipment. It explains how to use your equipment and how to build a good construction.

Normally you should try solving the challenges before watching the tutorial.

But for this activity, watch the tutorial at the same time as the doing the activities.

Go to [www.EPro8Challenge.co.nz/Tutorial](http://www.EPro8Challenge.co.nz/Tutorial) and enter the Challenge Code **STRT**.

### Red Joiners

Criteria	Use the Red 90° Joiners to build a rectangle approximate 700mm long and 400mm wide. Make sure everything is symmetrical: <ul style="list-style-type: none"><li>- all joiners on the same sides.</li><li>- the bolts are pointing in the same direction.</li></ul>
Criteria	Turn the rectangle into a 700mm tall box by using more red joiners. Again, make sure everything is symmetrical.

## Blue Joiners

Criteria	Use two blue joiners to add an aluminium rod to the top of the frame. Place one blue joiner on the frame. Place a second blue joiner on the aluminium rod.
Criteria	Use two pairs of blue joiners to join two 700mm long rods into one extra-long rod. The extra long rod should be rigid, and not able to be bent

## Axle

Criteria	Attach an axle to the top of the frame. Use a red joiner to attach an aluminium rod to the axle so that the rod will act like a swing.
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## Gears and Wheels

Criteria	Add a gear and wheel to an axle. Attach the axle to the top of the frame.
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## Crank Handle

Criteria	Attach a crank handle to an axle. Attach the axle to the top of the frame so that turning the crank handle will make the wheel turn.
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## Reel

Criteria	Attach a reel and a gear to an axle. Attach rope to the reel by feeding the end of the rope through the hole in the side of the reel. Tie a knot to secure the rope. Attach the axle to the top of the frame so that turning the crank handle makes the reel turn.
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## Pulley

Criteria	Use two blue joiners to attach a pulley to the top of the frame. Feed rope through the pulleys.
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## Motorised Wheel

Criteria	Use the online electronics simulator, code <b>STRT</b> . From the “Add Item” menu add: A motor, a Direction box, a battery and a button. Wire the components so that the wheel turns.
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## Packing Up

Criteria	All the components are disassembled and placed in the correct containers, as shown by the images on the lid. The rope is wound up into a tidy bundle, with the last metre of rope wound around bundle to make a tidy packet. The aluminium all stacked flat so that it is four per layer, and five layers high ( <i>if any of the aluminium is on an angle then the lid won't close properly</i> ). Remove all the pulleys BEFORE placing the reel in its container ( <i>if the reel is sitting on top of the pulleys then the lid won't close properly</i> ).
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