

# Let's do an experiment! Page 1

M&P\_L4HO2

**Create two railway lines: one with a curved track and another with a straight track.**

- They should be wide enough for a soft ball to roll down.
- They need to be the same length.

**Now design an experiment to test if the trains travelled more quickly along a track that was straight rather than having lots of bends in it?**

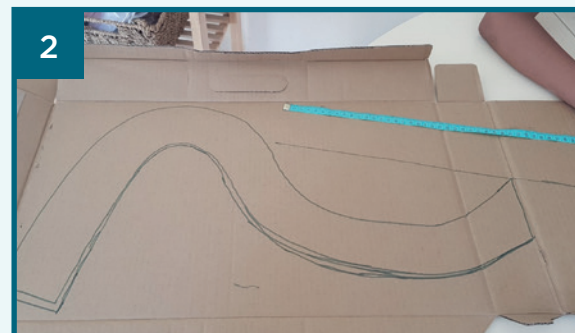
How about testing at what height trains became unsafe and derailed going down a curved track on a slope?

**A hypothesis is what you think the outcome of an experiment might be. You carry out science experiments to test a hypothesis. What is the hypothesis for your experiment?**

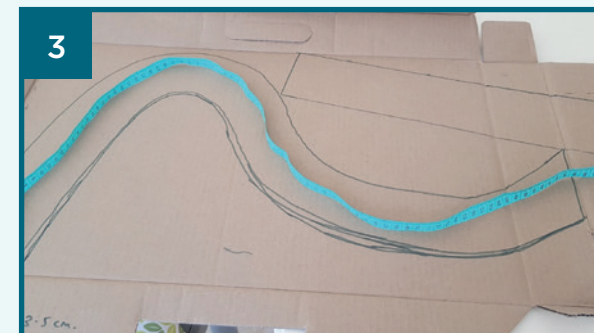
## Build your railway tracks



First draw the bottom of your 'tracks'. They should be wide enough for your ball to roll down it without getting stuck.



You should have one straight track and one with curves in it.



Check that your tracks are the same length using a tape measure.

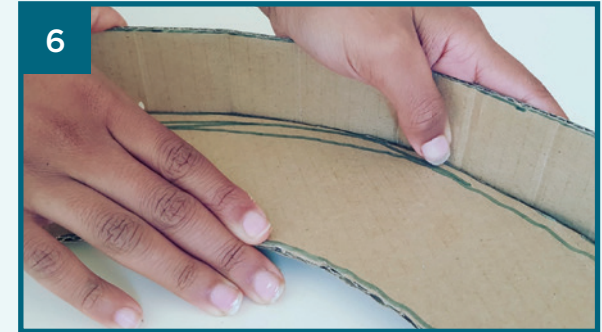
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4 Check the width to make sure it's the same all the way along. Do you need to alter it?



5 Now find the cardboard to make your railway sides to stop the 'train' (your ball) falling off. It works well if you have cardboard already with a bend in it to stick under your track.



6 You might need to bend the cardboard for the curved track.



7 You will need lots of Sellotape to make your railway edges robust.



8 You might need to reinforce inside the tracks.



9 And underneath...

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Your finished tracks might look something like this. The track sides are 5cm high.



10

In this example the young scientist used a metal ball.

Create a table to collect your data.  
Write down what the data tells you.

Gradient	Curved track	Straight track
3cm		
5cm		
10cm		
15cm		
20cm		
25cm		
35cm		

Can you think of any experiments, perhaps comparing different types of balls or toy vehicles.

Can you work out what the gradient is for the straight track at each height?

Height  $\div$  distance across bottom  
(underneath your slope).