

Student guide

Activity Title: Train Design

You will need:

Masking Tape
Lollipop Sticks (x15)
Dowel (x2)
Spool (x4)
Scissors
Paper Clips (x6)
Wire (x6 pieces, 20 cm long)
Ruler

Time: 65 minutes total

10 minutes: Brainstorming and planning
30 minutes: Building
10 minutes: Testing and adjusting
15 minutes: Group run through and discussion

Team:

Your team will include 2-3 members of your class

Objective:

Design and build a train car:

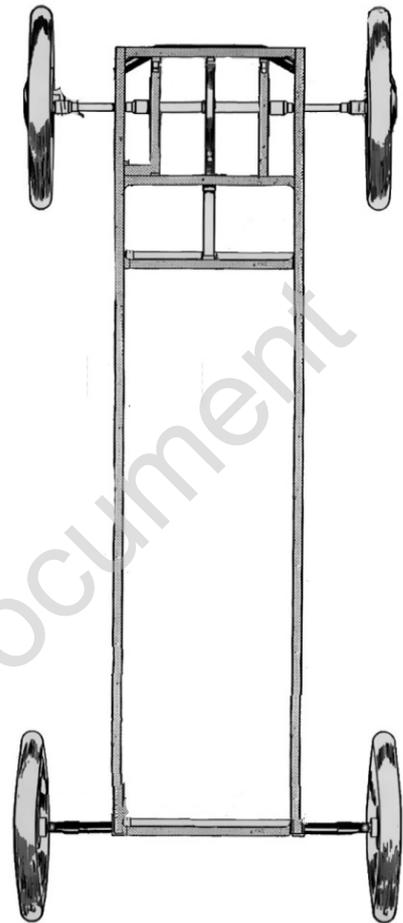
- 1. Build a train car that meets all specifications**
- 2. It has to connect with hooks to your classmates train cars front and back**
You will not be given any more materials or any more time

Specifications:

- Width between wheels must match rail width (use your ruler to measure)
- Position hooks in middle (front and back) of dowel
- Your train car wheels have to roll, not slide, down the track

Things to think about for class discussion:

Explain your carriage design. What makes it unique?
Does your carriage work or not? What could make it better?
Did your design turn out how you originally thought it would?



Background Information:

Crossrail is among the most significant infrastructure projects ever undertaken in the UK. From improving journey times across London, to easing congestion and offering better connections, Crossrail will change the way people travel around the capital.

Rolling Stock is the name given to the trains which during the project will be designed, re-designed (if necessary), tested and built.

Top 10 facts about Crossrail Rolling Stock:

1. Trains need to meet the sponsor's requirements
 - 36,000 passengers per hour across central London
 - Evolutionary rather than revolutionary
2. Each train is 204.7 metres long
3. Each train weighs 319 tonnes
4. Each train will carry up to 1500 passengers
5. They run using three different signal systems and 25kV overhead power
6. Built to the latest Technical and Safety standards
7. Passengers are able to walk the whole length of the train from inside
8. The trains will be designed and made in the UK (Derby) with parts of the train coming from all over Europe
9. Trains will be maintained at Old Oak Common depot
10. The first trains arrive in 2017

