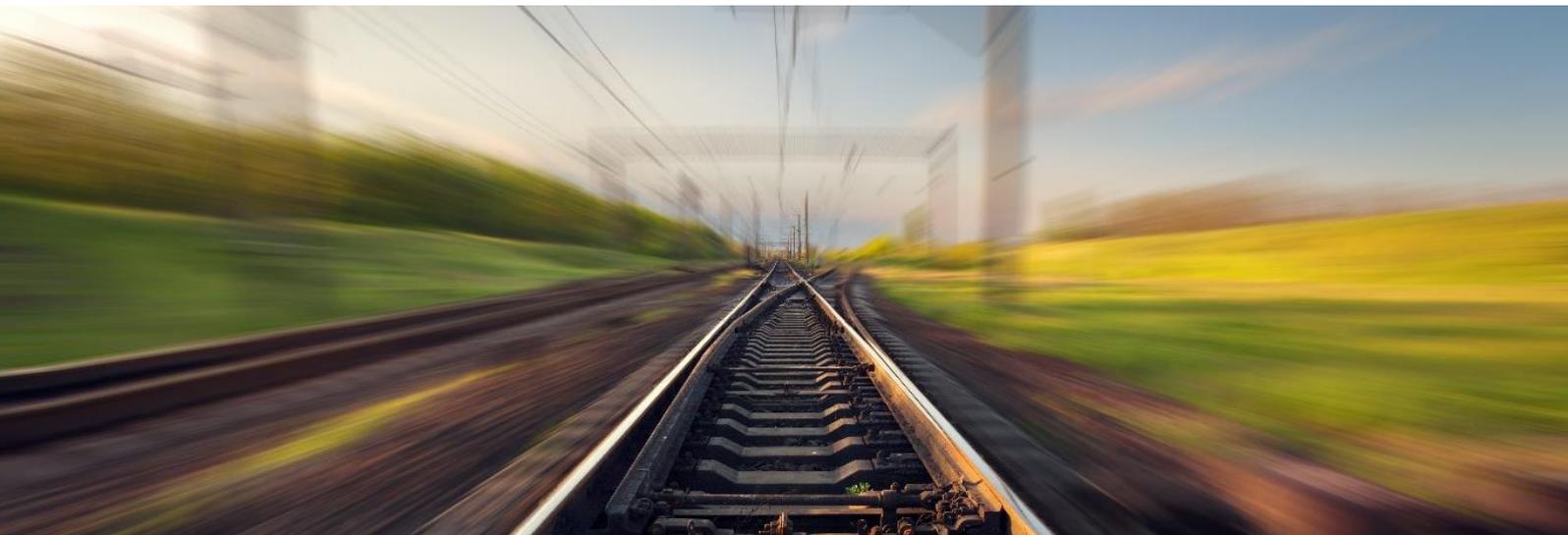


## Rail Activity For Education

### New Tram For Derby



### Ambassador/Teacher Session Guide



## Introduction & Activity Overview

This activity is designed with the idea to promote critical thinking, basics of design, engineering and innovation. This will in turn encourage teamwork and leadership from all those involved. A hands-on and fun activity to do, providing some introduction and insights to some areas of the railway industry.

Derby City Council has plans to improve and develop its city public transport system in line with the Midlands Engine for Growth strategy. Derby City Council has requested a scoping study of a new inner city guided tramway which would have the aim of alleviating overcrowding on the city's road systems. They would like the system to run on existing road ways and to popular city locations, a selection of which are shown on the city tourist map.

Derby City Council contracted a team of designers, engineers, transport planners and land surveyors, led by a project manager to deliver this project.

### Task 1: Introduction

As the consulting and delivery team to Derby City Council, produce a high level cost benefit to the client to describe the benefits of a new tram line over other forms of transport systems. (Why is building a new tram line a good idea?)

### Task 2: The Business Case

With the supporting information provided, develop a winning business case for the planning, construction and cost analysis of the new tram line. (Where, What, Why and How much?)

### Task 3: Presentation

In your teams, present your business case to the client.

### Task 4: Put it to the test

Build the railway bridge and put it to the test.

## Activity Timings

Overall activity time: **1.5 hours to 2 hours**

Activity breakdown:

Time	Description
15 minutes	Introductions & activity brief
15 minutes	Task 1
30 minutes	Task 2
5 minutes (per team)	Task 3
15 minutes	Task 4
10 - 15 minutes	Conclusion

## Materials/Equipment

- Flipcharts/writing papers
- Markers pens/coloured pens
- Derby City Centre Map
- Costing Sheet
- For bridge building:
  - Newspapers/Magazines/Used Paper
  - Tape/glue/string/stapler and staples

## Step by Step Instructions

### Task 1: Introductions

Assign students into groups of 6 - 10 people. With a one ambassador/mentor per group, facilitate the students through a 10 - 15 minutes discussion about the benefits of rail transport system compared to other transport modes.

or

Task 1 can be conducted as a large group session if there is not enough ambassadors/mentors to each group of students where the students can shout out their answers to the class.

### Task 2: The Business Case

In the groups, using the supporting information provided, support the students to develop a winning business case for the planning, construction and cost analysis of the new tram line. (Where, What, Why and How much?)

The student's brief is to:

1. Propose which city locations should be served by the rail link
2. Provide an indication of the new route
3. Indicate where the new depot facility will be located
4. Suggest the number of stops and those which should be manned
5. Select an appropriate point at which to cross the river

Give at least 30 minutes for this task. Encourage the students to think about cost versus returns, environmental and social implications. Allow the last 5 minutes for the student to prepare their presentation back to the other groups/judges.

### Task 3: Presentation

Points can be awarded to groups for their presentation base on their content and team work.

### Task 4: Put it to the test

Students will then go back to their groups to build a scale model of the railway bridge which will be used to bridge the river and put it to the test.

Divide the group into a further two groups and they will build their bridge using a city side team and the suburb side team. These two teams will not be able to communicate except through notes. One team will build one half of the bridge and the other team the second half. The bridge must meet at mid-span. The two build groups will then join their structures and test.

The bridge will be tested to see if the two sides join up and weighted items can be used to test the sturdiness of the bridge.

**Important Note:**

Ambassadors/Teachers can choose the task they wish the students to carry out according to amount of time available, student engagement and available resource.