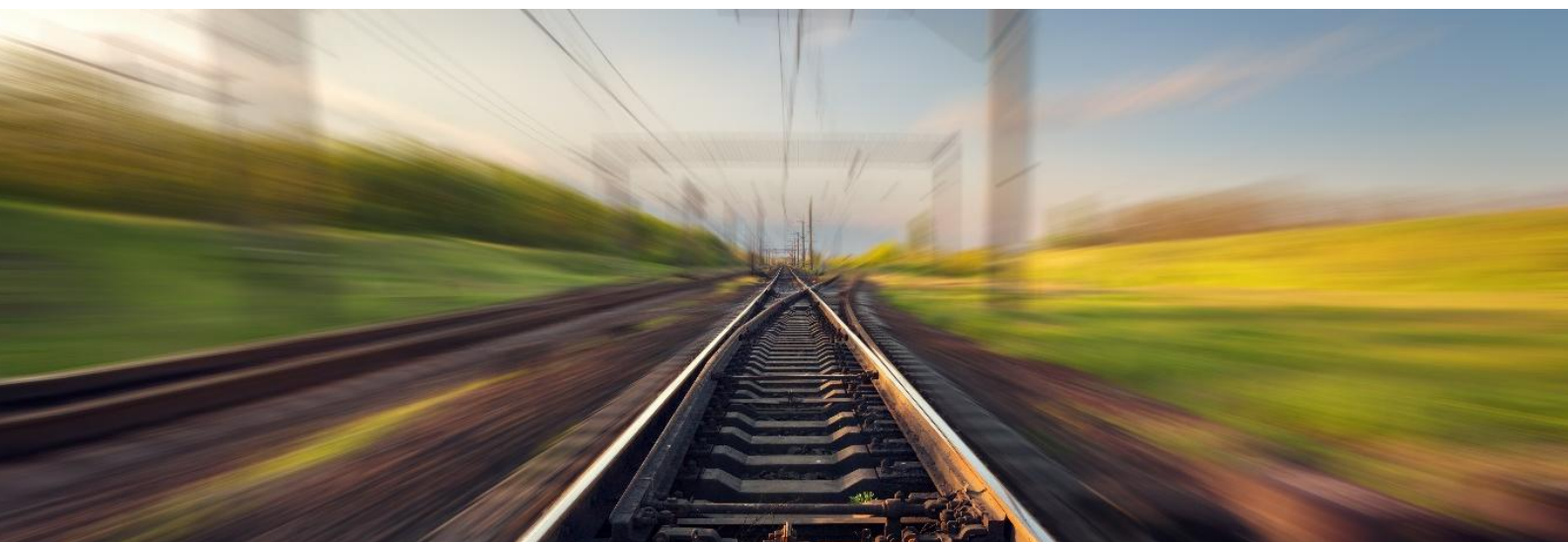


Rail Activity For Education

Build A Railway



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.

The activity sets out a task for students to design and build their own railway across the classroom/space provided capable of transporting "passengers" or "goods" from point to point. This activity can be adapted to provide different levels of insight into railways from the components that make up the railway such as rails, sleepers, and gauge to some introduction of design, project planning, and most importantly team work.

Activity Timings

Overall activity time: **30 -60 minutes** (timings are flexible and fall under Ambassadors discretion)

Activity breakdown (minimum):

- 15 mins – Introduction, task briefing and general layout of session area.
- 15 mins - Students on task, creating track sections.
- 10 mins – To perform tasks with Ambassador as lead.
- 5 mins – Finish, summary and tidy up.

Classroom Size

- 1 or 2 Ambassadors
- 16 – 20 Students. (Put into pairs) Over this number may be unmanageable
- Additionally help as required to promote involvement i.e. Teachers, teaching assistants and tutors

Materials/ Equipment

Full size kit available to Ambassadors to loan from YRP. The full kit contains a number of plastic tubes enough for 20 students and easy release cable ties.

Alternative for ambassadors sourcing own materials:

- Replace pipes with large drinking straws/packs of dry spaghetti/box of pencils/rolled up paper
- replace cable ties with rubber bands/sticky tape/string

2 Different sized balls

For full size kit - Softball and football size **recommended**

Alternative - ping pong ball/tennis ball/stress balls

Step by Step Instructions

The students are to be broken down into pairs. Each pair is to receive 6 poles (**all 6 poles must be used in the activity**) and given unlimited access to available cable ties for use as connections/adhesive. Each pair is to create a railway track section that is in unison with the other pairs among the group. This track section must be able to transport a ball of the Ambassadors choice, along the track and onto another pairs section. Under its own momentum and with no interference from students. Gravity can play a part in this and the track sections do not have to be fixed in location. The ball is not allowed to touch the ground or come fully of the tracks. *Ambassadors may benefit from hinting to students to create a 'Project manager' from themselves and to encourage a professional hierarchy to help in completing the activity. There is likely to be a natural leader who will come to the fore from a group and this should be positively encouraged.*

The two tasks are as follows:

Task 1

Create track sections in pairs and as a collective group put them alongside each other. Moving the ball along the tracks from one end of a room/area to the opposite end.

Task 2

Create track sections in pairs and as a collective group. Move the ball around in a circle, at least once. This circle can be as big or small as Ambassadors decides.

Points to note for both tasks

- The ball must move under its own power or from gravity, no use of hands is allowed.
- The ball must remain on the tracks the whole time it is in play.
- The tracks must not be stabilised on the floor and must be held up by students.
- The track can be held by the pair or by an individual.

Important Note:

With this activity primarily aimed at children and students, consideration and reasonable precaution must be taken to ensure the safety and wellbeing of all involved. Listed below are some considerations for Ambassadors and is by no means an exhaustive or definitive list.

- Sharp edges on pipes and cable ties.
- Hitting and general misuse of pipes. (Including safe space around people to avoid accidents)
- Over tightening of cable ties on a person. (Consider a safety item such as safe scissors for removal)
- Be aware of students running around to complete tasks, insure clear floor space and make students aware of their movements.

Example Session Plan

Instructions

Timing	Objectives/Actions
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Introduction – 15 mins

5 mins	Introductions, session length and fire plan
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2 mins	Break students up into pairs within the group
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5 mins	Brief the students on what is required and demonstrate the activity and equipment quickly in front of them. Reminder: Raise awareness at all times as the safety aspects of the tasks, sharp ends etc.
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3 mins	Each pair to be given 6 Pipes & access to available cable ties.
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Students on task – 15 mins

15 mins	Students to work in pairs and as a whole group to innovate and produce a set of track sections.
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Ambassador & Students performing task – 10 mins

10 mins	Ambassador to now coordinate the group to perform task 1 or 2 (Have fun!)
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Finish & Summary – 10 mins

8 mins	Discuss with students how they think it went? What could have been done differently? Emphasis on what went well & encourage them!
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2 mins	Tidy up and/or prepare for next session.
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