



Challenge 2

S&DR200 and Little Inventors present

Stockton and Darlington Railway Challenge

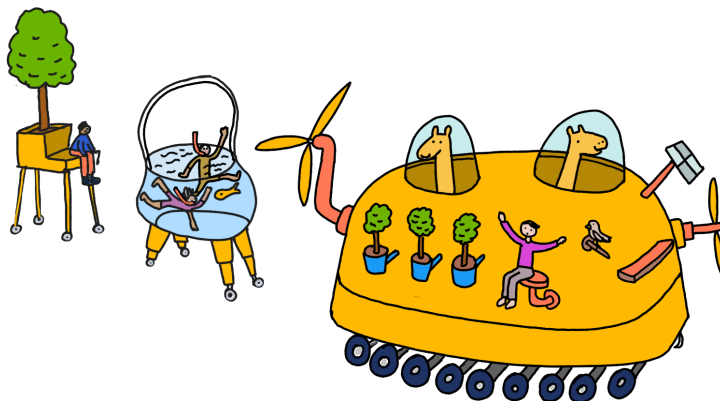
Next Stop: The Future!

Challenge Workshop Guide

The aim of Little Inventors workshops is to allow students to express the far reaches of their imagination. We want to inspire students to think up and draw original, ingenious, funny, fantastical or perfectly practical invention ideas. There are no limits!

Stockton & Darlington Railway Challenge. Next Stop: The Future! offers a creative approach to learning, using creativity and invention. It is a program designed for the S&DR200 Festival in partnership with Little Inventors.

At the end of the workshop, students will be able to draw and submit their own inventions to appear on sdr200.littleinventors.org, where they will be reviewed by the Little Inventors team. Every invention submitted to the challenge will receive individual feedback. There is also a bulk upload available for teachers, please email hello@littleinventors.org for more information and access to this. One of your students ideas might be chosen as a Little Inventors team favourite, turned into an animation or even brought to life by one of our Magnificent Makers.



Resource pack

The resources have been designed to support scaffolded learning for Year 5, 6, 7 and 8 students in areas governed by Stockton-on-Tees Borough Council, Darlington Borough Council and Durham County Council to stretch their imagination and creativity.

The resource pack includes:

- 1 powerpoint presentation
- 1 narrated powerpoint video which can be watched on the [challenge page](#)
- 4 activity drawing sheets
- 1 invention drawing sheet
- 1 prototyping activity

These are for you to select or combine to suit the time you have available and the abilities of your students.

- Use the notes in the presentation to deliver your workshop.
- You can choose the slides and activity sheets that you think are most appropriate to support your lesson, whether for primary or secondary students.
- We encourage a process where students can come up with lots of initial ideas and then develop one or more in more detail where time is available.

All video materials can be found on the challenge page at sdr.littleinventors.org

A step-by-step guide to using the resources

1. Familiarise yourself with the resources available before the workshop
2. Ensure that you have all the printed materials and tools needed to begin:

Printed materials per student:

1x Invention sheet (worth printing a few spare ones!)

1x Each of the activity sheets (AND/OR)

- Activity 1 Mix-up machine
- Activity 2 Office of odd
- Activity 3 My fantasy journey
- Activity 4 Along the tracks

Tools or materials needed during the workshop

Make sure you have plenty of black pens and colouring pens available for the workshop. You will also need scissors and glue.

4. Check the video content on the [challenge page](#) that is there to support you
3. When you are ready to deliver the workshop, set up the powerpoint on a whiteboard or computer to help you deliver the workshop.
4. Use the presentation guide notes to prepare you for each slide.



Running the workshop

This guide suggests how you might want to use the Little Inventors resources to run a structured workshop over two to three lessons. The tasks in *italics* are optional and you can choose to complete any or all of them as time allows.

The workshop is composed of 7 tasks:

1. The SDR200 Next stop: The Future! presentation.
2. *Activity 1 Mix-up machine*
3. *Activity 2 Office of odd*
4. *Activity 3 My fantasy journey*
5. *Activity 4 Along the tracks*
6. Invention drawing
7. Rounding up

The total time required to complete the following activities varies and we recommend running it over two to three sessions. Some of the activities could also be set as homework. You may want to deliver this as part of an existing scheme in design and technology, or as a stand-alone project. It's up to you!

Task 1 (starter activity): The SDR200 Next Stop: The Future! presentation (25-45 mins)

Explain that in this workshop, students will get to learn about inventions, about the Stockton and Darlington Railway and think about the future of rail travel.. They will then get a chance to come up with an invention idea in response to the challenge. It could be something fun, useful or totally bonkers!

Open the **Challenge Presentation** and go through the slides with your class. You can make this PowerPoint as interactive as you wish by asking your students questions throughout. If you would prefer to use the narrated powerpoint video you can find this in the downloadable pack or [online here](#).

Task 2: Activity 1 Mix-up machine (20-30 mins)

This activity allows students to get hands-on with inventing by cutting and sticking different parts together to make something new. It can be a sculpture or any kind of creation. It doesn't need to be functional (but it could be).

- Cut out the parts and arrange them into any shape they'd like.
- Before sticking down the parts, try out different arrangements and see which one they like best.
- Try to picture their creation in 3D. How would it stand up, or would it lie down or be attached to a wall perhaps?
- They can draw extra parts on spare paper and cut those out to add to their creation.
- Finally stick the parts to a piece of plain paper and finish off by colouring in. (This could be done for homework).

Task 3: Activity 2 Office of odd (10-20 mins)

This activity is all about imagination. Looking at the inventions on the sheet, challenge your students to come up with a name and a function for each one. They can be as silly as you like. This activity could be done in pairs or small groups to initiate conversation around the objects.

- Tell your students to look closely at each object, what can they see?
- Start writing down or share ideas in a group or pairs about what they think each object could be used for.
- Come up with a name for each object. Maybe something that talks about what it does or who it's for.
- Think about who might need to use this object and what they might do with it. Fill in the questions on the sheet.

Task 4: Activity 3 My fantasy journey (15-20 mins)

This activity is designed to stimulate creative thinking. It's about thinking beyond our everyday lives and using our imaginations to go on a fantasy journey. You don't even need to be yourself, what if you were an alien from outer space going on a train for the first time!

- Think of where you want to leave from and where you're going to end up
- Are you going to go on this journey as yourself or someone else?
- Work through the questions and imagine all of the details of this trip from getting ready, buying your ticket and being on the train itself
- Finish by drawing a scene from your journey, it could be looking into the train from outside or from inside looking out!

Task 5: Activity 4 Along the tracks (10 - 15 mins)

For this activity challenge your students to come up with something fun, clever or unusual that can travel on or make use of tracks! Encourage them to think outside the box about what it could be that might travel on tracks. Think about small tracks or bigger tracks, think about things that move.

Here's some inspiration! Take a look at this amazing [Super Grow 11000](#) invention - a plant that travels on tracks into the sunlight so it can grow twice as fast!

Task 6: Invention drawing sheet (20-30 mins)

Once students have had a chance to develop their ideas and creativity a little through one or more of the activity sheets, give them an invention sheet to draw and explain their own invention in answer to the challenge:

Invent your very own dream train carriage!

Students can draw more than one invention if they want. Remind them to add colours and labels to explain their invention. They could share it with the person next to them after they've finished to see if they need to add any more parts or labels to help describe their invention. We advise sketching out the idea in pencil first, then going over it in pen to ensure it is clear when scanned/photographed.

Task 7: Rounding up (5-15 mins)

Gather all the student invention drawings in a gallery around the classroom / workspace. Invite students to discuss their favourite ideas – what do they like and why? Encourage positive feedback throughout.

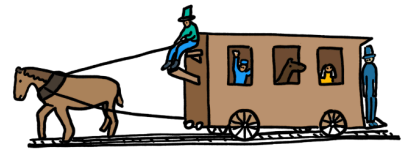
- What do they think of their invention?
- What are its strengths and weaknesses?
- How do they think their invention would work in real life?
- Can they imagine their invention being used by other people? What would they say?
- What other ideas or challenges can they think of?
- Why are inventions useful?
- How will they approach problems in the future?

Challenge 2

Give students extra invention sheets to come up with more invention ideas at home. They can also download more invention sheets for free on sdr200.littleinventors.org

After the workshop

Make sure you collect all invention sheets during the workshop. Invention drawings should be scanned or clearly photographed and be uploaded on sdr200.littleinventors.org for a chance to get picked as Little Inventors Team favourites, turned into animations or even brought to life by professional makers!



There is also a bulk upload available for teachers, please email hello@littleinventors.org for more information and access to this.

Prototyping Activity (Optional Extra)

If you'd like to continue expanding on your students' communication skills, the prototyping activity is a great next step. It will challenge your students to create a 3D model of the famous Locomotion One train with step by step instructions to help. You can find it within the resource pack.

For additional making videos and support check out our library of Get Making videos by professional cardboard artists Lottie Smith who will talk through every step from making tabs to creating textures.

[Watch the Get Making videos with Lottie Smith here](#)

Contact

To find out more about the S&DR200 Festival head to <https://www.sdr200.co.uk/>

If you have any questions about inventing or need support with the challenge please contact hello@littleinventors.org

To find out more about Little Inventors and discover other challenges visit <https://www.littleinventors.org/>

