

Enterprise Project: Project Briefing





1. Project Briefing and Session Formation Plan 1 Hour Lesson



Theme	The series of 5 lessons takes students through the process of designing a new station, from team formation, considering the location of the station, thinking about the customers and their needs, designing an innovative new solution to a future problem and finally planning and presenting their station to the class.
Learning Objectives	 All students should understand the project brief All students should be part of a team All students should be able to use their teamwork and problem-solving skills to take part in the career hunt challenge
Curriculum and Key Skill Links	 Communication Skills: within teams. Problem Solving Skills: Used in various challenges across the career hunt. Working with Others: Used in various challenges across the career hunt. Improving Own Learning & Performance: Working towards the correct answer – learning from mistakes, offering up ideas and opinions and self-motivation. Work-related Education: explains different ways of entering jobs in the rail industry.
Resources Required	Computer; Projector; PowerPoint Presentation (lesson 1 – project briefing and team formation); work booklet (30- these will be used by students across the 5 lessons); career hunt resources; a4 paper (at least 30 sheets). Resources listed allow for one session of 30 students, you will need to adjust accordingly.
Ability/ Special Educational Needs	The main task (career hunt) requires students to move around the classroom. One task involves building a bridge out of paper, most other tasks require reading of information sheets, however any problems with reading and comprehension should be overcome by the fact that students will be working in groups. Students will need to use pens/pencils and work in team.

SLIDE / TASK (CHALLENGE)	1 HOUR SESSION
1. Title / Introduction	0.5 minutes
2. Session aims	0.5 minutes
3-5. Project Brief	4 minutes
6. Team Formation / Project Submission	10 minutes
7. Career Hunt Challenge	30 minutes
8. Score board	-
9-11. Answers	10 minutes
12. Careers in Rail	5 minutes
Total:	60 minutes

SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES
Slide 3. Project Brief		PowerPoint	
Slide 4-5. Porterbrook HydroFLEX		PowerPoint	
Slide 6. Team Formation	Students will need to get into teams of 3-5. Teams then complete the project submission page in their workbooks. 10 minutes	Workbook page 1. Project submission.	Students must decide on a team name, and which team member will take which role within the team.
Slide 7-8. Career Hunt Challenge	Teams are challenged to complete the challenges in the workbooks (pg2-5). Resources should be scattered around the room and available to students. Once the team has completed a challenge, they will inform the teacher to be awarded the points (scoreboard on slide 8 or use whiteboard to keep track!) 30 minutes	Workbook pages 2-5 Career hunt resources	Some teams will work with all members focussing on one tasks, others will split up to tackle more tasks! Either way is fine!
Slide 9-11. Answers	Go through each of the answers – most of the questions will have been scored during the activity. 8. allow class to vote on favourite pattern – 5 bonus points for the winning team. 10. if time allows – allow teams to present their bridges to the group.	Power-Point	
Slide 12. Careers in Rail		Power-Point and link to video	



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Enterprise Project : Location Location Location



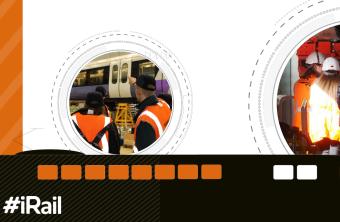


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2. Location, Location, Session Plan 1 Hour Lesson



	Theme	The series of 5 lessons takes students through the process of designing a new station, from team formation, considering the location of the station, thinking about the customers and their needs, designing an innovative new solution to a future problem and finally planning and presenting their station to the class.
1000	Learning Objectives	 Learn about jobs involved in route planning Consider the effects and requirements that the rail system and rail infrastructure places on the built and natural environment. Understand the importance of budgeting in the rail industry Work as a team to overcome different problems and successfully plan a safe route
	Curriculum and Key Skill Links	 Communication Skills: within teams Problem Solving Skills: route planning challenge Working with Others: within teams Maths: budgeting Time management: ensuring to complete all parts in the time given. Geography: grid references, reading an OS map.
10/1	Resources Required	Computer; Projector; PowerPoint Presentation (lesson 2 – Location, Location, Location; work booklet (30- these will be used by students across the 5 lessons); Resources listed allow for one session of 30 students, you will need to adjust accordingly.
	Ability/ Special Educational Needs	The route planning challenge will be completed within teams helping any learners who may be struggling. For visual/spatial issues a larger copy of the map could be printed to ensure they can see and understand it. Additional paper or calculators may be needed if they are struggling with the maths element of route planning. Students will need to use pens/pencils and work in team.
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SLIDE / TASK (CHALLENGE)	1 HOUR SESSION
1. Title / Introduction	0.5 minutes
2. Session aims	1 minute
3. Jobs linked to route planning	3 minutes
4. Jobs linked to route planning	3 minutes
5. Jobs linked to route planning	3 minutes
6. Jobs linked to route planning	3 minutes
7. Jobs linked to route planning	3 minutes
8. Route planning challenge	40 minutes
9. Careers in rail	2 minutes
Total:	60 minutes

SESSION GUIDE			
SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES
Slide 2. Learning outcomes		Power-Point	
Slide 3 - 7. Job linked to route planning. Show learners the job title and ask if they know what this job may be before revealing the answer.	Learners see if they can guess what a job may entail before given the answers. Which job do they think they would like to do? Looking at the key skills given which jobs might they be good at?	Power-Point	*click* to make instructions disappear *click* to start timer - train horn will sound after 1 minute *click* to make job description appear *click* to make key skills appear
Slide 8. Route planning challenge!	Your challenge is to: Plan a route to extend an existing trainline. Draw your route on the map using the information provided to work out the cost of your new trainline. Answer the questions about the new trainline and station!	Power-Point Workbook Pages 7-9	Students will use the information given in the booklets to extend the train route, work out the cost and start thinking about the train station Remind them to keep time management in mind.
Slide 9 Careers in rail		Power-Point	





Enterprise Project: Future Thinking





3. Future Thinking Session Plan 1 Hour Lesson



Theme	The series of 5 lessons takes students through the process of designing a new station, from team formation, considering the location of the station, thinking about the customers and their needs, designing an innovative new solution to a future problem and finally planning and presenting their station to the class.	
Learning Objectives	 Understand the concept of innovation how it is important in the rail industry. Understand the concept of sustainability and its connection to the built environment and to transport solutions in the rail industry. Demonstrate a good level of teamwork and communication skills to complete a challenge. 	
Curriculum and Key Skill Links	 Communication Skills: within teams Creativity Skills: Coming up with ideas, creating mood boards Problem Solving Skills: Refining ideas Working with Others: discussing and refining ideas History: learning about the history of the train industry 	
Resources Required	Computer; Projector; PowerPoint Presentation (lesson 3 – Future Thinking); work booklet (30- these will be used by students across the 5 lessons); access to the internet/resources (magazines) for mood board activity Resources listed allow for one session of 30 students, you will need to adjust accordingly.	
Ability/ Special Educational Needs	This session has the students working in their teams to produce ideas, refine them and develop them. Working in their teams should allow for collaborative conversation and communication.	





SLIDE / TASK (CHALLENGE)	1 HOUR SESSION
1. Title / Introduction	0.5 minutes
2. Session aims	1.5 minute
3. What is innovation/ What is sustainability?	4 minutes
4. History Rail	2 minutes
5. Innovation in Rail	2 minutes
6. Innovation in Rail	2 minutes
7. Innovation of Rail	2 minutes
8. Task one: Mind Map	10 minutes
9. Task two: Develop Ideas	15 minutes
10. Task Three: Mood Board	15 minutes
11. Careers in Rail	6 minutes
Total:	60 minutes

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SESSION GUIDE			
SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES
Succession of the state of the	Slide 3: Innovation and sustainability Ask the students if they know what innovation and sustainability are. Discuss this, and the differences. Innovation – a new idea, design, product or method. Sustainability – being able to continue over a period of time – usually used in reference to the environment. Students will be taken through a history of the rail industry. There are notes on the Power-Point slides which are included below.		
Slide 3-7 History of the rail industry.	Slide 4: History of Rail The rail industry was born in the UK and the world's first overground railway was opened in 1604, with trains being pulled by horses which is where the term 'horsepower' comes from (image is from 1908!). This form of transport was originally used to carry coal, with the first passenger trains not being opened until 1807. The UK's first successful steam engine being built in 1804 by Richard Trevithick. The Penydarren was ground-breaking in it's use of steam power in order to drive a hammer at the Pen-y-Darren		

bit more later!

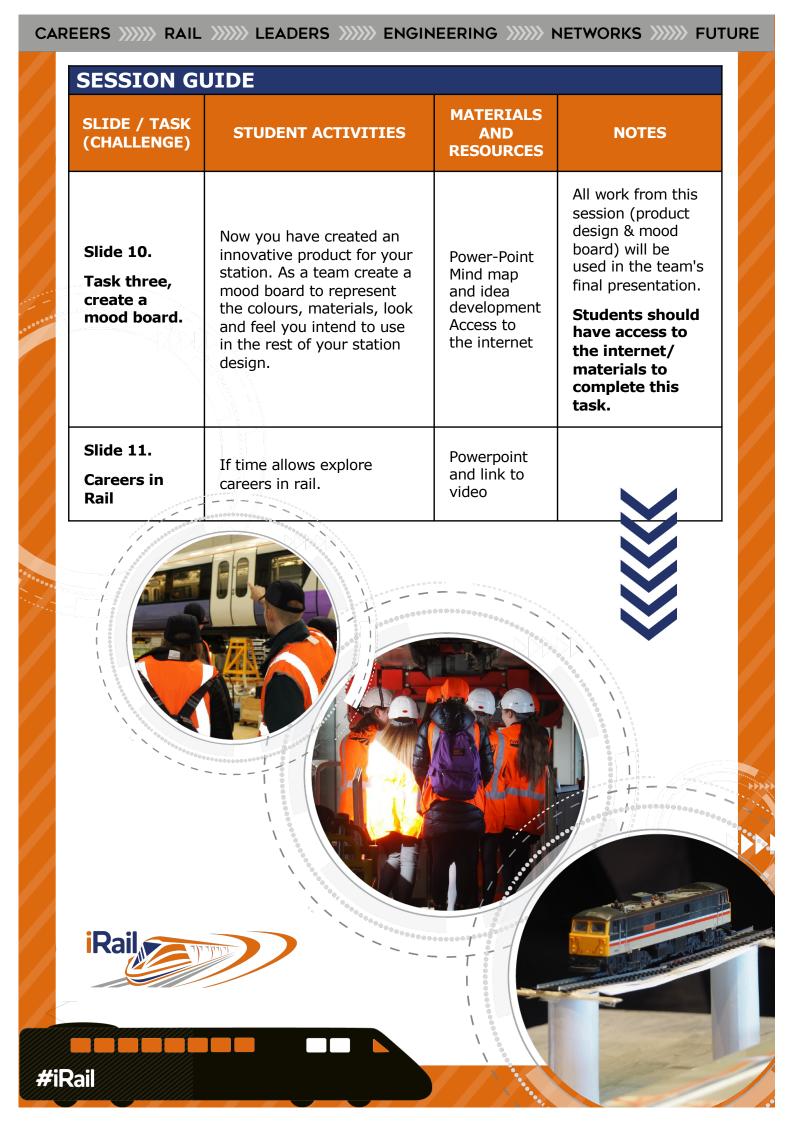
Ironworks. This revolutionised the rail industry allowing trains to run further and faster than being pulled by horses! Since this time the rail industry has been constantly innovating, from horse to

electrification of the rail network the UK can now use electricity to power locomotives on nearly half of the track in the UK either through a third rail or overhead wires. There have also been further innovations in the powering of locomotives –this will be covered a

steam power, then to diesel powered locomotives. With

SESSION GUIDE			
SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES
	Slide 5: Innovation in Rail Stephenson's Rocket is an early steam locomotive The most direct pollution problem created by the locomotive was the carbon dioxide emitted into the atmosphere. It gave way to poor air quality and poor living conditions. The Shinkansen - Japanese bullet train was built originally to connect Tokyo with the distant regions of Japan to encourage economic development but is frequently used now as a commuter train. Its optimum operating speed is 200 mph. the record set in 2015 was 375mph. Bullet trains, also called maglev trains, operate with magnetic levitation technology developed by Japanese and German engineers. Magnetic levitation is a s a system of		
Slide 3-7 History of the rail industry.	transportation that susp predominantly trains, us large number of magnet method has the potential than wheeled mass transgo as fast as possible, Sono sharp curves. Slide 6: Innovation in (For electric trains, the generated is used to calculate trains).	ends, guides and sing magnetic leving for lift and proper to be faster, quisit systems To a hinkansen (bullet way the electricit	propels vehicles, itation from a very pulsion. This ieter and smoother allow the trains to train) tracks have
	Diesel trains' carbon em ones. Figures from the U show some diesel locom per passenger per kilom an electric Intercity 225,	JK Rail Safety and otives emit more eter, compared w	d Standards board than 90g of C02
	The source of the electricompare a country such electricity comes from nabout 80% of grid power to EcoPassenger, for example and to be a justified as justified a	as France, where uclear power, wit r is generated fro ample, a train trip) emits just 4.4kg ourney between t	e about 75% of th Poland, where th coal. According of from Paris to g of carbon dioxide the Polish cities of
	Hydrogen Trains only relaction between hydrog produces only water and the train! They can run of specific rail infrastructures	gen and oxygen in I electricity which on a standard trad	n the fuel cell is used to power ck so don't require

SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES
Slide 3-7 History of the rail industry.	with society. Websites and Apps are commuters to use servi. This reduces the need to for those passengers with time. And in keeping with the now have facilities in place.	ne rail industry is forming alliances ces such as Apple to keep paper ticke ho use passes who demands of a moduse to offer on-boan use their own of the contract of the contra	constantly developing to keep up with phone providers to allow was Wallet to store electronic tickets. ets safe, which is especially useful ich are valid for longer periods of odern society some rail companies bard entertainment, like that offered devices to watch films and play we trains.
Slide 8. Task one: create a mind map for the station	Using the information, they have learnt the learners need to discuss and explore new technologies that could be used within their station, to improve customer or employee experience.	Power-Point A3 paper for mind map.	
Slide 9. Task Two As a team choose an idea to develop.	Using the mind map develop ideas using key questions.	Power-Point A3 paper	 What will it be called? What will it do? Why? Who will use it - staff, passengers or the public? How is it powered? Is it sustainable? What does our product look like? Have detailed designs. How could you promote it? Think about slogans and logos.



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Enterprise Project : Designing Your Station





4. Designing Your Station Lesson Plan 1 Hour Lesson



Theme	The series of 5 lessons takes students through the process of designing a new station, from team formation, considering the location of the station, thinking about the customers and their needs, designing an innovative new solution to a future problem and finally planning and presenting their station to the class. Understand why transport hubs are built Take into consideration disabilities, age of passenger and use of station in design. Working within a strict budget when designing station Sticking to a design brief		
Learning Objectives			
Curriculum and Key Skill Links	 Communication Skills: within teams Problem Solving Skills: designing a station to fit everyone's needs Working with Others: within teams Maths: creating and sticking to a budget Design and spatial awareness: creating a station space for all Listening: designing a station within a design brief 		
Resources Required	Computer; Projector; PowerPoint Presentation (lesson 4 – designing the station); work booklet (30- these will be used by students across the 5 lessons); a3 paper (one – two sheets per team) Resources listed allow for one session of 30 students, you will need to adjust accordingly.		
Ability/ Special Educational Needs	The design challenge will be completed in groups so should help to bridge any gaps in those students who may struggle. However, inspiration images or technology can be used to inspire those students struggling with ideas. Students will need to use pens/pencils and work in team.		





SLIDE / TASK (CHALLENGE)	1 HOUR SESSION
1. Title / Introduction	0.5 minutes
2. Session aims	0.5 minute
3. Over station design project. Create mood board for station	10 minutes
4. Design a multi-purpose over station space that is suitable for all rail users	1 minute
5. Design brief	1 minute
6. Budgeting for project.	1 minute
7. Station floor plan	2 minutes
8. Design station, create budget and floor plan.	35 minutes
9. present station in teams.	10 minutes
Total:	60 minutes

SESSION GUIDE			
SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	Notes
Slide 2. Learning outcomes			
Slide 3. Over station design project.		Power-Point	Space in big cities is highly sought after and in demand. That means companies such as Network Rail need to develop transport hubs. This involves building upwards on an existing station and adding developments that would be beneficial for the civic ecosystem.
Slide 4. Design a multi- purpose over station space that is suitable for all rail users	Teams use their creative research to produce a mood board to represent the colours, materials, look and feel they intend to use in their station design	Power-Point Paper	

SESSION GUIDE			
SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES
Slide 5. Design an over station space. Design brief and the items learners need to consider, the budget they must stick to and items that need to be included.		Power-Point	At the end of session five, students will present their mood boards/ floor plan designs and present their overhead station project as a team.
		Power-Point	
Slide 6. Create the budget for the station		Booklet page 13	
Slide 7. Create a floor plan for		Power-Point	
Slide 8. Design your project	Task: Design the floor plan for your overhead station. The space should be multi-purpose with options for this to change as the needs of the community change. You must also consider issues of access and make sure the space is accessible for all. Maximum 3 storey upgrade. Budget:	Large paper for floor plan, booklet page 13 budgeting	Remind the learners to consider those targeted groups discussed in the beginning. Can they include any of the bonus challenges?

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SESSION GUIDE				
SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES	
Slide 9. Present your station in your teams.	Learners give a quick presentation about their station, budget and floor plan. How have they answered the design brief?	Floor plan and budget.	Questions they need to answer are displayed to help them Questions are Have you answered the design brief? What considerations have you made for the target groups? Have you got any of the bonus items?	



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Enterprise Project : Project

Presentations





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5. Project Presentations Session Plan 1 Hour Lesson



Theme	The series of 5 lessons takes students through the process of designing a new station, from team formation, considering the location of the station, thinking about the customers and their needs, designing an innovative new solution to a future problem and finally planning and presenting their station to the class.
Learning Objectives	 Explore the different careers in the rail industry and see how many you can guess Review presentation skills Prepare presentation Present to the group
	Communication Skills: within teams
iy Sk	Problem Solving Skills: presentation planning
d Ke S	Working with Others: within teams
n an Link	Time management: preparing for presentation
culur	Speaking: speaking the class through their presentation
Curriculum and Key Skill Links	• Organisation: ensure all students contribute to the presentation in some way.
Resources Required	Computer; Projector; PowerPoint Presentation (lesson 5 – Project Presentations); work booklet (30- these will be used by students across the 5 lessons); presentation materials by each group
Res	The resources listed allow for one session of 30 students, you will need to adjust accordingly.
Ability/ Special Educational Needs	The presentation will be completed within teams helping any learners who may be struggling. It is encouraged that every member of the team goes up to present although this isn't necessary. Students will need to use pens/pencils and work in team.



SLIDE / TASK (CHALLENGE)	1 HOUR SESSION
1. Title / Introduction	0.5 minutes
2. Session aims	1 minute
3. Career Articulate	5 minutes
4. Presentation skills	3 minutes
5. presentation skills video	3.5 minutes
6-7. Planning your presentation	15 minutes
8. Presentation Time	25 minutes
9. Self-assessment	
10. Careers in Rail	5 minutes
Total:	60 minutes

SESSION GUIDE

SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	Notes
Slide 2. Session outcomes		Power-Point	
Slide 3. Career articulate	Take a pack of cards – you have 1 minute to describe what's on the card for your classmates to guess. See how many careers in the rail industry you can get!	Power-Point Articulate cards – 1 set per team	Warm up activity to get the students thinking about how they say things and communicate with their peers – preparation for their presentations at the end of the session. They cannot say the word on the card or any root of the word.



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Slide 4. Presentation skills Presentation dos and don'ts. Show words one at a time and students need to decide if they are a do or a don't. See how many you can get correct. Power-Point Power-Point Power-Point Power-Point Power-Point Power-Point Power-Point Power-Point As a word appears on screen decide if they are a do or a don't for presentations. See how many you can get correct. Power-Point Power-Point Make eye contact = do, don't just scan Use lists of three = do, three feels complete and help people Mumble to your teammates = don't be as prepared as possible Look at the floor - don't, stand tall and proud the whole time you are presenting - be a team player! Make up facts = don't, facts are really useful, but they need to be accurate. Talk immediately = don't, walk to the front, pause and then talk Say thank you - do, this is important and signifies the end of your presentation Don't care if it goes wrong = do, we all make mistakes	SESSION GL	JIDE		
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all make mistakes	Presentation skills Presentation dos and don'ts. Show words one at a time and students need to decide if they are a do	appears on screen decide if they are a do or a don't for presentations. See how many you can	Power-Point	then begin the presentation with something engaging to capture their attention. Make eye contact = do, don't just scan Use lists of three = do, three feels complete and help people Mumble to your teammates = don't, be as prepared as possible Look at the floor - don't, stand tall and proud the whole time you are presenting - be a team player! Make up facts = don't, facts are really useful, but they need to be accurate. Talk immediately = don't, walk to the front, pause and then talk Say thank you - do, this is important and signifies the end of your presentation
Slide 5. take notes on Presentation the video Power-Point			Power-Point	



SESSION GUIDE			
SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCE S	NOTES
Slide 6-7. Planning your presentation	Slide 6: You are going to pitch your project to the rest of your class. Explain your developed ideas, design, and ethos behind their new rail station. Consider: Target audience Body Language Engaging Keep it simple and focused Practise! Slide 7: Use the boxes in your booklet to make some notes about your team's strengths and weaknesses in terms of presentation skills.	Power-Point Booklet page 15	Give the students time to complete their designs and plan their presentation.
Slide 8. Presentation time! Each team will present.	Allow each team to present their ideas. Using the project voting slip, rate each team on: Presentation skills Innovation Customer satisfaction score Income Once all teams have presented, look at your scores and decide on your winner. The team with the most votes will win!	Power- Points Each teams designs and other items Booklet page 16	Explain that students will get voting slips to vote for each category, and then decide on an overall winner, considering all four categories. Once all students have presented, tally up the 'winner' votes from the bottom of the voting slip, and announce the winning team.

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SLIDE / TASK (CHALLENGE)	STUDENT ACTIVITIES	MATERIALS AND RESOURCES	NOTES	
Slide 9. Congratulations You have successfully completed your project! The skills you've been using are valuable in the world of work.	Have the students do a self analysis – Option one – thumbs UP for great, MIDDLE for OK, DOWN for could have been better for each skill Option two – have one side of the room as 'great', the opposite wall 'could have been better' and have the students move across the room according to where they rate themselves for each skill.	Power-Point		
Slide 10. Careers in Rail	If time allows explore careers in rail	Powerpoint and link to videos		

