TEACHING PACK

RAILWAY ELECTRIFICATION
LESSON PLAN ACTIVITIES FOR SECONDARY SCHOOLS

LIVE WIRE

Railway electrification COMING SOON to a line near you

Education plays a vital role in understanding the railway and promoting rail safety

www.networkrail.co.uk/safetyeducation
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Electrifying the railway – faster, greener and more reliable

A third of Britain’s railway is already powered by electricity. More rail routes are being electrified to make journeys faster, greener and more reliable. Electrification will improve travel between major cities and is vital in supporting economic growth.

**Note to teachers:**
To find out about plans for your region you can download a factsheet from the Secondary School Resources section at:
www.networkrail/safetyeducation

**Electrification and rail safety**

Electrification brings great social and economic benefits but it also has safety implications that pupils need to be aware of.

Electrified overhead lines powering the railway carry electricity 100 times greater than in the home. Underground cables and the third rail also carry electricity that can seriously injure or kill. Staying clear of the track area and being aware of the potential hazards are essential.

These lesson plan activities focus on different aspects of the topic – from the benefits of railway electrification to safety issues. Devised with help from teachers, they cover a wide range of subjects from Science through to PSHE and English. They have been developed to match curriculum areas and meet requirements for PSHE teaching, such as promoting a pupil’s ability to assess and manage risk appropriately and keep themselves safe, whilst also reinforcing an introductory understanding of the science of electricity.

**All our lesson plan activities have links to the curriculum and have clear learning objectives**

Lesson plan activities have been developed to meet curriculum requirements set down by Education Scotland, Estyn in Wales and Ofsted in England.
Lesson plan activities for Key Stages 3 and 4

This set of secondary school lesson plan activities covers Key Stages 3 and 4. The social and economic benefits of railway upgrades are explored from a present day and historical perspective. Safety around the railway is also drawn out in a number of ways – from the key facts of staying safe to an analysis of peer group pressure to take risks.

The activities provide a fun and interactive way to introduce discussion about railway electrification and safety into the classroom.

Learning objectives
By the end of these lesson plan activities pupils will understand:

– Historically how trains have been powered over the centuries.
– The benefits of railway electrification.
– The power and danger of electricity used on the railway.
– How to be safe around the railway.
– The relationship between decision making and consequences.
– Peer influence and emotional resilience in relation to safety.

Ofsted
These activities can help your school meet the Ofsted requirement that pupils should be able to ‘assess and manage risk appropriately and keep themselves safe’.

Note to teachers:
For materials covering wider rail safety issues, including use of level crossings, please see:
www.networkrail.co.uk/safetyeducation
2.1 Core railway electrification lesson plan activity

Science (PSHEE)

Electrification of the railway

For this lesson you can download a PowerPoint presentation with accompanying teacher’s notes on the plans for railway electrification from the Secondary School Resources section at: www.networkrail.co.uk/safetyeducation

It contains everything pupils need to know about the electrification of the railway, including safety messages.

It is intended to be used in conjunction with the additional lesson plan ideas and worksheets that are available. These extra ideas help to bring out different aspects of railway electrification in more depth across a number of different subject areas.

You may also wish to show the video of Nathan to older pupils (KS4). This real life story graphically depicts a young person’s experience of being electrocuted on the railway and the devastating effect the experience has had on his life. Due to its hard-hitting content, we recommend viewing the video for suitability first.

Have a class discussion about railway electricity safety myths! This can help to reinforce the facts. Below are some frequently asked questions and ‘Top 10 myth-busters’ to encourage discussion.
# Top 10 electricity myths – busted!

<table>
<thead>
<tr>
<th>Myth</th>
<th>Reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wearing rubber-soled shoes means you can’t be electrocuted.</td>
<td>Wearing everyday footwear will not protect you from an electric shock.</td>
</tr>
<tr>
<td>Electricity on the railway is switched off unless there’s a train coming.</td>
<td>Electricity on the railway is always on.</td>
</tr>
<tr>
<td>Power lines are insulated.</td>
<td>Overhead power lines are insulated to prevent specific problems – for example occasional contact with a tree. They are not insulated against people coming into contact with them, for example by playing near the railway or climbing on trains.</td>
</tr>
<tr>
<td>Electricity is only dangerous if you touch it.</td>
<td>Electricity can jump and arc up to 3 metres. It travels particularly well in wet conditions.</td>
</tr>
<tr>
<td>An electric shock throws you clear of the danger.</td>
<td>Not always – some types of current cause muscles to contract, meaning you freeze to the electrical source and can’t let go. The type of injury caused by electrocution varies depending on the current, voltage, passage through the body and other factors.</td>
</tr>
</tbody>
</table>
6. Myth | Electricity is only conducted by metal.
---|---
Reality | The human body, metals, water or liquid and even non-metallic materials such as trees and ropes can all conduct electricity.

7. Myth | If a company has put electrical equipment somewhere accessible to the public, it must be safe.
---|---
Reality | The equipment is only safe if it is used in the correct way, and it is not intended to be used by members of the public. Don’t ignore the yellow signs indicating an electrical hazard – they are there for a reason.
If you notice that electrical equipment on the railway has been damaged in some way, perhaps due to vandalism or age, don’t try to investigate – stay clear and inform railway staff (or an adult).

8. Myth | Trespassing on the railway is harmless.
---|---
Reality | Electricity on the railway is always on and can always kill. Whenever you’re on the track you’re at serious risk from high voltage electricity, as well as trains. Always use a level crossing to cross the railway safely. If you see someone trespassing on the railway, call 999.

9. Myth | You can tell which rail is electrified.
---|---
Reality | Electricity on the railway doesn’t just run through the third rail, there can be hidden cables and power boxes. You can’t be sure where railway electricity is located. Don’t try to guess – stay clear and never ignore a railway sign – it is there to keep you safe.

10. Myth | If there’s no visible sign of harm to someone who’s been electrocuted, they’re OK.
---|---
Reality | Electricity can burn from the outside in and from the inside out. Damage can be inflicted on the surface of the skin, beneath the skin, or both. People can suffer internal damage and bleeding days after an electrical injury.

Note to teachers:
Further information is available in the Rail Life Safety Guide available from the Secondary School Resources section at: www.networkrail.co.uk/safetyeducation
Lesson plan activities on level crossing and rail safety for Key Stages 1–4 are available for download via the link: www.networkrail.co.uk/safetyeducation
Electricity and railway safety: Frequently asked questions (FAQs)

Q. Why do birds sit on wires and not get killed?
A. Electric current always wants to find a way to the ground but, because birds aren't touching the ground or anything that's in contact with it, the electric current won't flow through them.

Q. Why does electric current want to get to the ground?
A. It's the nature of electric current to move from an area of higher voltage to an area of lower voltage, if it is given a path to travel there. The ground is the lowest voltage area so if you give electric current a path to the ground it will take it. When electricity goes into the ground, the earth absorbs its energy.

Q. How does electricity actually kill someone?
A. Human bodies contain 70% water, which makes them an ideal conductor for electricity, which seeks the easiest path to the ground. Being electrocuted affects your body in a number of potentially fatal ways:
   - The muscles in your heart start to flutter, failing to pump blood properly. Prolonged exposure leads to cardiac arrest, resulting in death.
   - Your lungs and respiratory system are paralysed.
   - Your nervous system uses tiny electrical impulses which are disrupted by an electric shock. This affects our ability to sense, move, think, respond and remember.
   - Electrical current coming into contact with living tissue heats up and burns beneath the skin, blackening the surface.
   - Forceful muscular contractions can cause your body to grip onto the source of electricity so that you can't let go. Alternatively you can be thrown clear by the strength of the electrical current, leading to injury to internal organs and broken bones.
   - 9 out of 10 people die from the electric shock received from getting too close to railway electrified overhead lines.

Adapted from information provided by UK Power Networks. Read more at: http://powerup.ukpowernetworks.co.uk/faqs.aspx
3.1 Back to the future – reporting down the line

For this task, divide the class into groups of three and number them 1, 2 or 3.

‘1s’ are journalists from 2020
They report back from the future on the electrified railway and what it’s like. Ask them to report back on a number of levels:

– What difference has railway electrification made to the lives of local people and in local communities?
– How have the trains changed compared to those running now?
– What sort of speeds are the trains running at?
– What sort of railway safety campaigns are running in 2020?
– What are the key messages they’re trying to get across?

‘2s’ are Victorian railway engineers

– What was a day in their life like?
– What were their main safety concerns?

Further reading is referenced at the end.
‘3s’ are railway electrical engineers working on the track now
– What’s happening?
– What are they doing to the line?
– What pressures might they be under?
– What are the key safety issues for the engineers and for the general public?

Individuals (or groups, depending on the size of the class) can share their reports with the rest of the class.

Useful resources
The class can research their task using the following resources among others:

The future of Britain’s electric railway:
www.telegraph.co.uk/travel/9403366/The-futures-electric-for-Britains-railways.html
www.railway-technology.com/features/feature104304

The Victorian railway:
www.victorianweb.org/technology/railways/index.html

The railway now:
www.networkrail.co.uk/aspx/12273.aspx
Get the class to write an imaginary account:

**Future train driver from 2050**

Write an account of ‘a day in my life on the railway’ from the perspective of a train driver in 2050.

**Here are some issues pupils could consider:**
- How are the trains powered?
- What speeds do they run at?
- What do the trains look like and what facilities do they have onboard?
- What do stations look like? How have tickets changed?
- What new safety features do trains now have?
- What new safety features are there in the community and by the railway?

Tell the rest of the class.

The class can vote for the best account.

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**Did you know?**

Electricity can travel as fast as the speed of light!
3.2 Danger on the tracks: a drama

Drama (PSHEE, English)

In this activity pupils draw on real life stories to create and act out a short drama about an incident on the railway track, and then report on the event for local media. It encourages pupils to understand the risks of using the railway inappropriately and the consequences this can have.

Note to teachers:
This activity is suitable for pupils aged 11–16. You may want to give more guidance to younger pupils in this age range.

Research
You can use the following resources to help shape the drama:

Real life story videos
You can download the videos below from the Supporting Materials section at: www.networkrail.co.uk/safetyeducation

Nathan
Nathan was electrocuted while playing near the railway overhead power line. He suffered severe shock and burns, and was lucky to survive.

Richard
Richard drove over a level crossing when the lights were flashing and the alarm sounding, crashing into a train. His two friends died.
3.2 Additional lesson plan activities for Key Stage 3

Leighton and Sammy
Leighton tells the story of his girlfriend Sammy who died in his arms after she tripped and fell onto the electrified rail while they were taking a shortcut across the railway.

Railway staff talk about what happens on the tracks
Train drivers and a mobile operations manager for Network Rail give the lowdown on the risks.

News reports of the real life incidents
You can view news reports of these real life incidents on the links below:
– Samantha Cook
www.news.bbc.co.uk/1/hi/england/hampshire/6382771.stm
– Richard Fleming
www.news.bbc.co.uk/1/hi/scotland/highlands_and_islands/7346459.stm

Why not...
Use the videos as a basis for discussion about safety issues and the risks that the people in the videos encountered in each case. Younger pupils could write a first person account as if they were the person in the video.

Further resources
Key facts about the railway
Find the facts on the railway and level crossings via this link:
www.rail-life.co.uk/trackthefacts.html

Level crossings
Level crossings enable us to cross the railway safely. To find a factsheet that contains some useful detailed information about level crossing safety, go to Information For Parents via the link below:
www.networkrail.co.uk/safetyeducation

Trespass and vandalism
This video illustrates the dangers of trespassing on the railway:
www.trackoff.org/TrespassAndVandalism.aspx?subItemId=A2AD2237-950B-40B0-93B1455C6D8B40E2#anchorVideo

The dangers of the electrified rail
BBC news story about deaths caused by the third rail:
www.bbc.co.uk/news/uk-10640569

Perspectives
A video about the impact of a death on the railway from the point of view of railway staff as well as the British Transport Police available from the Secondary School Resources section at:
www.networkrail.co.uk/safetyeducation
Outline scenario

The class should consider these aspects in creating their own drama:

Characters involved
- You and your friends or others you know, or characters you've made up.
- Parents, brothers, sisters.
- Form teachers.
- The emergency services.
- A police officer.
- An ambulance crew.
- The Network Rail community safety manager.
- A local councillor.
- Reporters from the local newspaper and TV station.

The situation
What was the occasion and time of day? For example, was it dark, cold or rainy making it hard to see what was happening – or a clear sunny day when you'd expect to know well in advance if a train was coming...

The reason for ending up on the track
A shortcut returning home from seeing friends? A game?
A regular journey home from school or work? Rescuing an animal or a ball?

What happened?
There are a number of scenarios to choose from, including trespassing on the tracks illegally, or messing around on a level crossing, or an incident involving the overhead power lines or third rail.
3.2 Additional lesson plan activities for Key Stage 3

Why did it happen?
A combination of factors may have caused the incident:

– Motivation for taking a risk, e.g. a bad decision due to time pressures; a desire to rescue someone or something; a game gone wrong; a mistake or misunderstanding; confusion due to emotional upset; bad influences such as friends or alcohol.

– Actual causes of harm, e.g. slipping and becoming trapped; injury; coming into contact with electrified rails or overhead lines; being hit by a train; unable to make it to safety.

What was the impact of the incident?

– What range of thoughts and emotions might different characters be experiencing?

– How would the characters react in the immediate aftermath of the accident?

– What would happen in the next few hours, days and weeks as a result of the incident?

Reporting the incident
A group of pupils could play the part of journalists from the local paper and/or TV station. They interview the protagonists in the drama to get the facts, and write a newspaper story or script a broadcast news item about the accident.

Why not...

Film your news item. Ask pupils to look at some recent footage from your local TV news and identify the key components of a news story, for example:

– Studio opener – presenter introduces the story.

– Location report – another presenter reports from the scene.

– Eye-witness testimony – input from someone who’s been directly affected by the incident.

– An expert on the railway – e.g. Network Rail community safety manager, local transport officials.

– Summing up.

They can then base their own bulletin around this structure.
3.3 Who’s in charge?

This activity is designed to help students explore how confident they are in their own decision making, recognise the external influences that shape their thinking, and better understand the power of peer pressure. Starting with a self-assessment exercise, it moves on to a peer influence discussion before using examples of risk-taking on the railway to explore these issues.

Ask the pupils to work through a short self-assessment quiz on their own. There is a worksheet available from the Secondary School Resources section from: www.networkrail/safetyeducation

Peer influence discussion

Now follow up the questionnaire with a discussion. You can use these questions as prompts:

- Have you ever been influenced to do something you didn't want to do?
- How did it make you feel?
- Why did you give in?
- Did you regret it?
- What would you do differently next time?
- Think of a time when you've made a good decision, and a time when you've made a bad decision. What influenced you? What were the consequences?
- Why do you think some people are more susceptible to peer pressure than others?
- What advice would you give a friend who was feeling pressured into doing something they didn't want to do?
Why not...
Try a ‘silent debate’. This can be an effective way of handling sensitive and personal topics. Ask pupils to write their responses to the questions on Post-it notes, gather them in after each question and stick them on to a large sheet of paper (use one sheet per question). Or ask pupils to write down their thoughts and ‘post’ them in a ballot box. These can then be pulled out at random and used as part of the discussion.

Decision-making exercise
Now ask pupils to apply their understanding of the decision-making process to some real-life instances of risky behaviour. Here are some examples:

Nathan
Nathan was electrocuted after playing near the railway overhead power line. He suffered severe shock and burns, and was lucky to survive.

Leighton and Sammy
Leighton tells the story of his girlfriend Sammy who died in his arms after she tripped and fell on the electrified rail while they were taking a shortcut across the railway.

Trespass and vandalism video
The link below illustrates the dangers of trespassing on the railway:
www.trackoff.org/TrespassAndVandalism.aspx?subItemId=A2AD2237-950B-40B0-93B1-455C6D8B40E2&#anchorVideo

As a whole class or in groups, discuss what might be influencing the people in the clips to take a risk.
4.1 An electrifying debate

Geography (PSHEE)

Get the class to debate the benefits and costs of railway electrification to the local community. Issues to consider include:

Benefits

**Environmental**
- Reduced carbon emissions.
- Quieter trains (less noise pollution).

**Economic**
Improved rail travel allows cities to work together more effectively, stimulating the economy. For example:
- Transforming rail travel through faster, more frequent trains connecting key towns and cities will bring great economic benefits.
- Thousands of private sector jobs could be created.
- Businesses will be able to recruit from a wider pool of talent while employees will be able to get to work more quickly and easily.
- Manufacturing trading links with other parts of Europe improve as freight trains deliver goods to market more efficiently, enhancing economic competitiveness.

**Increased capacity and efficiency of travel**
- Lower cost and impact of electrified trains.
- Increased access to bigger markets for business.
4.1 Additional lesson plan activities for Key Stage 4

Costs

**Effects on local landscape and community**
- Altered appearance of landscape.
- Trees and some buildings are cleared around the trackside area.

**Construction**
- Cost of infrastructure.
- Impact of construction work, disrupting existing services and journeys.
- Cable theft: cost of journeys disrupted plus replacement.

**Safety concerns**
- Railway electricity is very powerful and can be dangerous to people in the community if they take risks or are unaware of the dangers.

Ask the class to carry out their own research into the arguments for and against electrification. They can use the resources suggested below as a starting point:

Prime Minister David Cameron’s speech on railway investment (July 2012):
www.ukpolitics.org.uk/node/291

Information on the benefits of improving and electrifying the railway from Network Rail’s website: www.networkrail.co.uk/aspx/12273.aspx

An article on the English Heritage site looks at the conservation issues involved in modernising the historical Great Western Railway:

The Guardian environment blog asks “How green are electric trains?”:
www.guardian.co.uk/environment/blog/2012/jul/16/electric-trains-diesel-green-carbon
4.2 Reporting on the railway

English (History)

The ancient Greeks first had the idea of moving freight in carts along tracks carved in rock. Many centuries later Germany created a wooden railway in the sixteenth century. However, the first use of steam locomotives was in Britain, and the railway system is the oldest in the world.

The first public railway was built in 1807, using horse drawn carriages on an existing tramline. A number of small, privately owned lines followed. During the 1840s a national rail network was almost completed. Building the railway totally transformed cities, towns and the landscape. Writers and artists of the time captured the enormous changes brought by the arrival of the railway.

Get your class to read this description of the construction of the new railway from the nineteenth century – you can download it as a worksheet from the Secondary School Resources section at: www.networkrail.co.uk/safetypducation
Extract from Chapter 6 of Dombey and Son by Charles Dickens  
(first published in monthly parts 1846–1848)

The first shock of a great earthquake had, just at that period, rent the whole neighbourhood to its centre. Traces of its course were visible on every side. Houses were knocked down; streets broken through and stopped; deep pits and trenches dug in the ground; enormous heaps of earth and clay thrown up; buildings that were undermined and shaking, propped by great beams of wood. Here, a chaos of carts, overthrown and jumbled together, lay topsy-turvy at the bottom of a steep unnatural hill; there, confused treasures of iron soaked and rusted in something that had accidentally become a pond. Everywhere were bridges that led nowhere; thoroughfares that were wholly impassable; Babel towers of chimneys, wanting half their height; temporary wooden houses and enclosures, in the most unlikely situations; carcasses of ragged tenements, and fragments of unfinished walls and arches, and piles of scaffolding, and wildnesses of bricks, and giant forms of cranes, and tripods straddling above nothing. There were a hundred thousand shapes and substances of incompleteness, wildly mingled out of their places, upside down, burrowing in the earth, aspiring in the air, mouldering in the water, and unintelligible as any dream. Hot springs and fiery eruptions, the usual attendants upon earthquakes, lent their contributions of confusion to the scene. Boiling water hissed and heaved within dilapidated walls; whence, also, the glare and roar of flames came issuing forth; and mounds of ashes blocked up rights of way, and wholly changed the law and custom of the neighbourhood.

In short, the yet unfinished and unopened Railroad was in progress; and, from the very core of all this dire disorder, trailed smoothly away, upon its mighty course of civilisation and improvement.

But as yet, the neighbourhood was shy to own the Railroad. One or two bold speculators had projected streets; and one had built a little, but had stopped among the mud and ashes to consider farther of it. A bran-new Tavern, redolent of fresh mortar and size, and fronting nothing at all, had taken for its sign The Railway Arms; but that might be rash enterprise – and then it hoped to sell drink to the workmen. So, the Excavators’ House of Call had sprung up from a beer-shop; and the old-established Ham and Beef Shop had become the Railway Eating House, with a roast leg of pork daily, through interested motives of a similar immediate and popular description. Lodging-house keepers were favourable in like manner, and for the like reasons were not to be trusted. The general belief was very slow. There were frowzy fields, and cow-houses, and dunghills, and dustheaps, and ditches, and gardens, and summer-houses, and carpet-beating grounds, at the very door of the Railway. Little tumuli of oyster shells in the oyster season, and of lobster shells in the lobster season, and of broken crockery and faded cabbage leaves in all seasons, encroached upon its high places. Posts, and rails, and old cautions to trespassers, and backs of mean houses, and patches of wretched vegetation, stared it out of countenance. Nothing was the better for it, or thought of being so. If the miserable waste ground lying near it could have laughed, it would have laughed it to scorn, like many of the miserable neighbours.
Note to teachers:
Dickens was very much a modern man of his age and a huge fan of the railway, using it to travel all over the country giving sell-out reading tours!

Ask the class some questions to see how they've interpreted the meaning and tone of the extract:

What would you say is Dickens' overall impression of the railroad?

Provide a summary of the positive and negative implications of the new railroad from Dickens' perspective. Provide evidence from the text to support your view.

If Dickens were alive today what differences might he observe in the way major railway infrastructure projects are carried out in modern times? Pupils could put their answers under the following headings: engineering/technology, pollution/hygiene, safety and impact on the local community.

What concerns about construction work on the railway might people living locally raise today? E.g. TV reception, view, safety, etc. Ask the class to pretend they are representatives from the railway – how would they manage local people’s concerns?

Idea:
The class could undertake a creative writing exercise with a ‘Live Wire’ story or poem.

Either:
Write a story that is based on the perils of a young person taking a dangerous split second decision near the electrified railway. For example, one summer afternoon a group of mates has gone out to find something to do. They end up close to the railway line. What happens next?

Or:
Considering what you have learned, write a poem that captures your impressions of how a major railway upgrade can impact on individuals and the community.
4.3 Shocking campaigns

Media studies (PSHEE)

Railway line history from the Victorian era to the present day

This exercise asks pupils to compare, contrast and evaluate different British rail safety campaigns over the last 40 years, to come up with their own safety message. An example script and storyboard and template is provided with the worksheet.

You can download the exercise as a worksheet from the Secondary School resources section at:

www.networkrail.co.uk/safetyeducation

Videos:

Public information – Substations Danger: 1979
www.youtube.com/watch?v=Y-yGTrd4Z7I

Electricity (Football) public information film 1989:
www.youtube.com/watch?v=bjgeUiNwteU

Network Rail “Watch Rush” Campaign 2008:
www.youtube.com/watch?v=nJyH7gWndjs

Prompt questions:

− Which is the most effective communication and why?
− What is the message each poster or video is trying to convey?
− Who is it meant for? (Is the communication targeted at a specific audience such as teenagers?) Give evidence to support this view.
− What visual or narrative techniques have been used? Are they effective or ineffective?
− Get the class to design their own railway electricity safety poster, TV, YouTube video or radio advert.
− If it is a TV advert they should draw up a storyboard and script.
− Ask the class to think carefully about what messages they want to convey and the audience they wish to reach – using language, visuals and other techniques that will encourage the target audience to stay safe. Examples of messages are in the worksheet.

Film the advert and put it on YouTube!
Reference

Curriculum Links

The plans have been carefully developed with teachers to match curriculum areas and meet requirements for PSHE teaching set down by Her Majesty’s Inspectorate of Education in Scotland, Estyn in Wales and Ofsted in England.

Key Stages 3 and 4

Core lesson plan activity
Rail electrification, the power quiz and the Rail Life ‘Safety Top 3’. Busting the myths plus a real-life story.

Science:
• Recognise that there are hazards in living things, materials and physical processes, and assess risks and take action to reduce risks to themselves and others.

PSHEE:
• Understand risk in both positive and negative terms and understand that individuals need to manage risk to themselves and others in a range of situations.
• Reflect on feelings and identify positive ways of understanding, managing and expressing strong emotions and challenging behaviour.
• Use knowledge and understanding to make informed choices about safety, health and well-being.

1. Key Stage 3

Back to the future – reporting down the line

History:
• Understand and use appropriately dates, vocabulary and conventions that describe historical periods and the passing of time.
• Develop a sense of period through describing and analysing the relationships between the characteristic features of periods and societies.
• Identify and explain change and continuity within and across periods of history.
• Analyse and explain the reasons for, and results of, historical events, situations and changes.

English:
• Make different kinds of relevant contributions in groups, responding appropriately to others, proposing ideas and asking questions.
• Use a range of dramatic approaches to explore complex ideas, texts and issues in scripted and improvised work.
• Select from strategies to adapt speaking and listening flexibly in different circumstances.
• Listen with sensitivity, judging when intervention is appropriate.

2. Key Stage 3

Danger on the tracks: a drama

Drama:
• Consider characters and plot development and staging.
• Use a variety of ways to convey action, character, atmosphere and tension when scripting and/or performing plays.
• Appreciate how the structure and organisation of scenes and plays contribute to dramatic effect.
Lesson plan activity

PSHEE:
- Understand risk in both positive and negative terms and understand that individuals need to manage risk to themselves and others in a range of situations.
- Reflect on feelings and identify positive ways of understanding, managing and expressing strong emotions and challenging behaviour.
- Use knowledge and understanding to make informed choices about safety, health and well-being.

English:
- Engage an audience, using a range of techniques to explore, enrich and explain ideas.
- Write imaginatively, creatively and thoughtfully, producing texts that interest and engage the reader.
- Adapt style and language appropriately for a range of forms, purposes and readers.
- Consider what the reader needs to know and include relevant details.
- Move beyond their current situation and take on different roles and viewpoints.
- Write for contexts and purposes beyond the classroom.
- Analyse and evaluate subject matter, supporting views and opinions with a range of evidence.

3. Key Stage 3
Who's in charge?

PSHEE:
- Understand risk in both positive and negative terms and that individuals need to manage risk to themselves and others in a range of situations.
- Develop the confidence to try new ideas and face challenges safely, individually and in groups.
- Understand that people have multiple roles and responsibilities in society and that making positive relationships and contributing to groups, teams and communities is important.
- Use the social skills of communication, negotiation, assertiveness and collaboration.

English:
- Engage an audience, using a range of techniques to explore, enrich and explain ideas.
- Write imaginatively, creatively and thoughtfully, producing texts that interest and engage the reader.
- Adapt style and language appropriately for a range of forms, purposes and readers.
- Consider what the reader needs to know and include relevant details.
- Move beyond their current situation and take on different roles and viewpoints.
- Write for contexts and purposes beyond the classroom.
- Analyse and evaluate subject matter, supporting views and opinions with a range of evidence.

1. Key Stage 4
Electrifying debate

Geography:
- Develop a framework of spatial awareness in which to appreciate the importance of the location of places and environments from local to global.
- Appreciate the differences and similarities between people's views of the world, its environments, societies and cultures.
- Develop their knowledge and understanding of geographical concepts and appreciate the relevance of these concepts to our changing world.
Lesson plan activity

PSHEE:
• Understand risk in both positive and negative terms and that individuals need to manage risk to themselves and others in a range of situations.
• Develop the confidence to try new ideas and face challenges safely, individually and in groups.
• Understand that people have multiple roles and responsibilities in society and that making positive relationships and contributing to groups, teams and communities is important.
• Use the social skills of communication, negotiation, assertiveness and collaboration.

2. Key Stage 4
Reporting on the railway

English:
• Engage an audience, using a range of techniques to explore, enrich and explain ideas.
• Write imaginatively, creatively and thoughtfully, producing texts that interest and engage the reader.
• Adapt style and language appropriately for a range of forms, purposes and readers.
• Consider what the reader needs to know and include relevant details.
• Move beyond their current situation and take on different roles and viewpoints.
• Write for contexts and purposes beyond the classroom.
• Analyse and evaluate subject matter, supporting views and opinions with a range of evidence.

History:
• Present and organise accounts and explanations about the past that are coherent, structured and substantiated, using chronological conventions and historical vocabulary.
• Communicate knowledge and understanding of history in a variety of ways, using chronological conventions and historical vocabulary.

3. Key Stage 4
Shocking Campaigns

Media Studies:
• Produce convincing and effective analyses of media texts. Use media terminology to write clearly, accurately and in an organised fashion.
• Demonstrate independent and effective evidence of research and planning.
• Plan independently and effectively, demonstrate flair and creativity.

PSHEE:
• Understand risk in both positive and negative terms and that individuals need to manage risk to themselves and others in a range of situations.
• Develop the confidence to try new ideas and face challenges safely, individually and in groups.
• Understand that people have multiple roles and responsibilities in society and that making positive relationships and contributing to groups, teams and communities is important.
• Use the social skills of communication, negotiation, assertiveness and collaboration.
Further Resources

There are a number of key resources you can use to support all of these activities.

www.rail-life.co.uk
Rail Life is a new Network Rail initiative created by young people for young people that raises awareness of rail safety issues. The high impact youth website contains facts, videos, advice and lots of content on rail safety for 11–17 year olds.

The vision for the campaign is that it will become the main place that young people will go to for insights and information on many aspects of the railway – from safety and careers, to general information about Britain’s transforming rail network.

www.networkrail.co.uk/safetyeducation
You will find a wide range of Rail Life teaching resources on rail safety on the Network Rail website, ranging from assembly kits to lesson plans, for use in schools, youth clubs and other community settings.

www.trackoff.org/TeacherPacks.aspx
You will find a range of teaching resources on rail safety here. We have also listed specific resources you can use within each lesson plan activity. They can be used for different age groups as you see fit. Network Rail’s regional community safety managers work with local communities and a variety of organisations including local police, sports clubs, schools and local councils to raise awareness of the dangers of taking risks on the railway and to get young people involved in positive activities.

For further information, email: communitysafety@networkrail.co.uk