NetworkRail

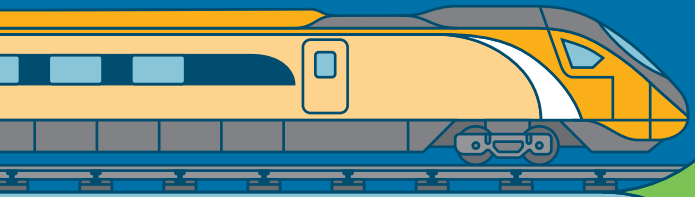
Your ticket to finding out what makes our

RAILWAYS

so awesome

This is why railways are so epic...

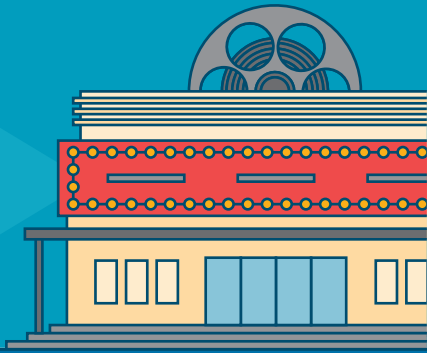
Railways connect towns and cities and help you to get to brilliant places like:



to sports events,

the airport for your holidays,

the cinema,



and even to see your gran.

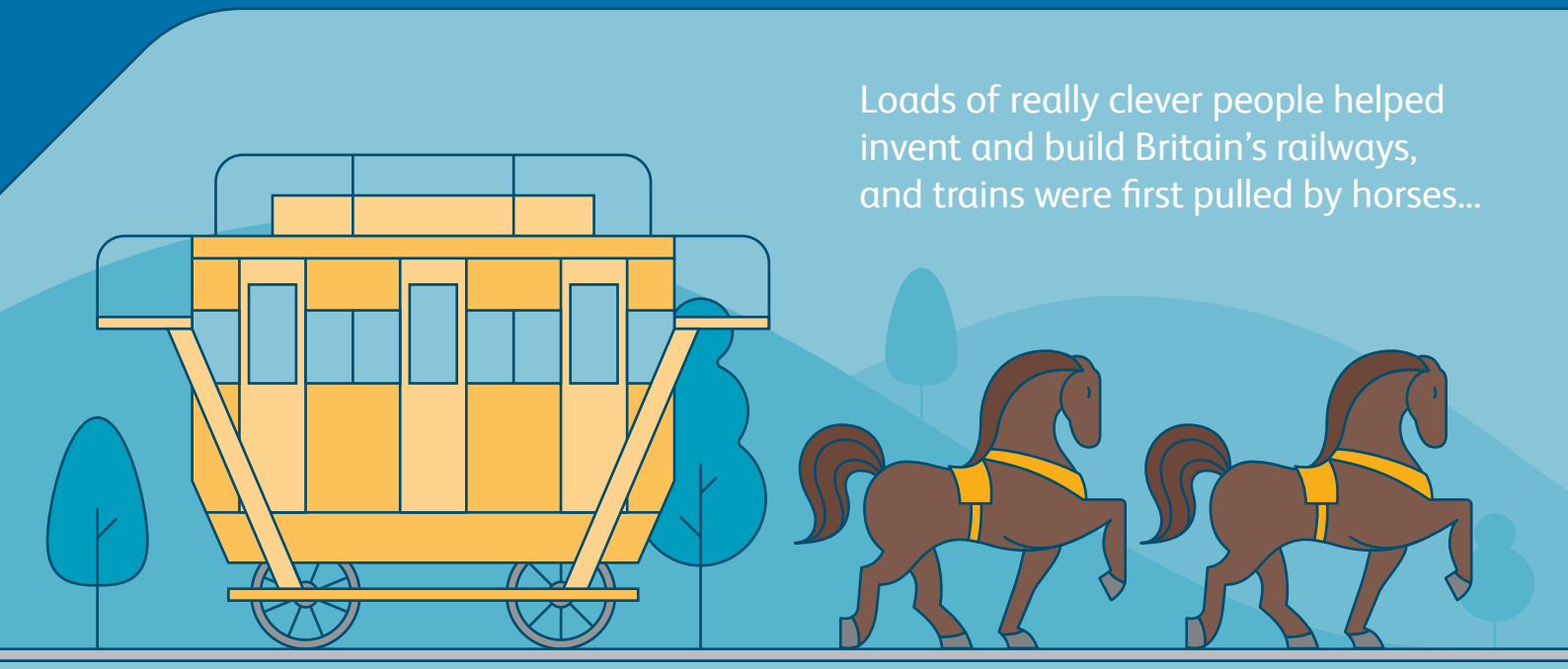
But where did the railways come from?

And what have **your** science, technology, and maths classes got to do with the new high-speed trains that will soon be running right across Britain?

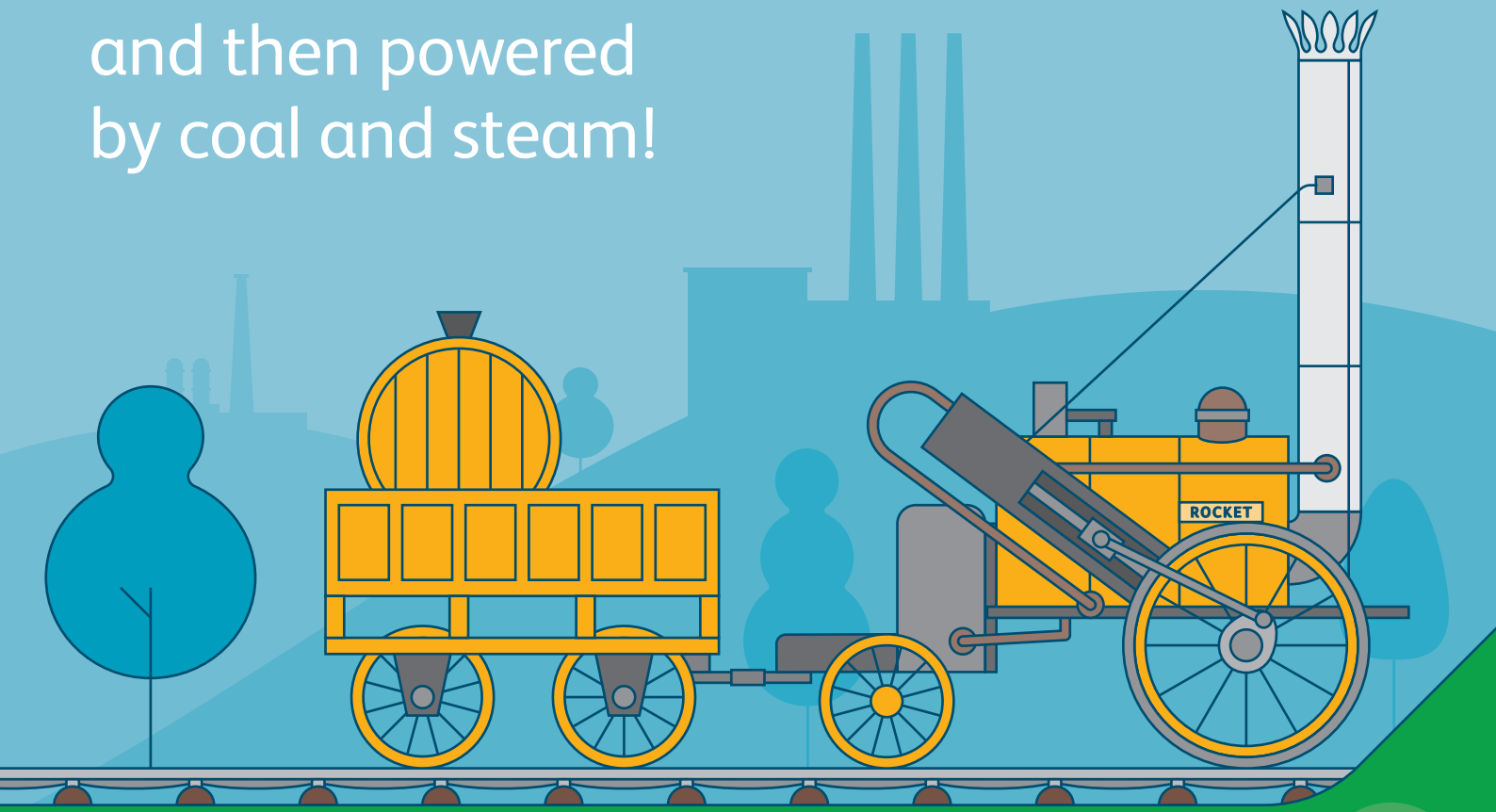
There's railway everywhere – but where did it start?

The first train to move on a railway was a really long time ago, in 1804 – that's over 200 years ago!

Loads of really clever people helped invent and build Britain's railways, and trains were first pulled by horses...



and then powered by coal and steam!



But hang on, 200 years ago they didn't have computers, iPads, or even calculators – so how did these railway inventors work out how to build miles and miles of railway, and how did they design the very first train?

Without computers, iPads or calculators, tell us how you think the inventors worked out how to build the railways. **What might they have used?**

Who are engineers, and why did they plan loads of train tunnels across the railways?

Engineers use science, technology and maths to design and improve things.

When the engineers were planning the railways, they used science and maths to work out how to get miles and miles of train track around rivers and hills, buildings - and even around whole towns.

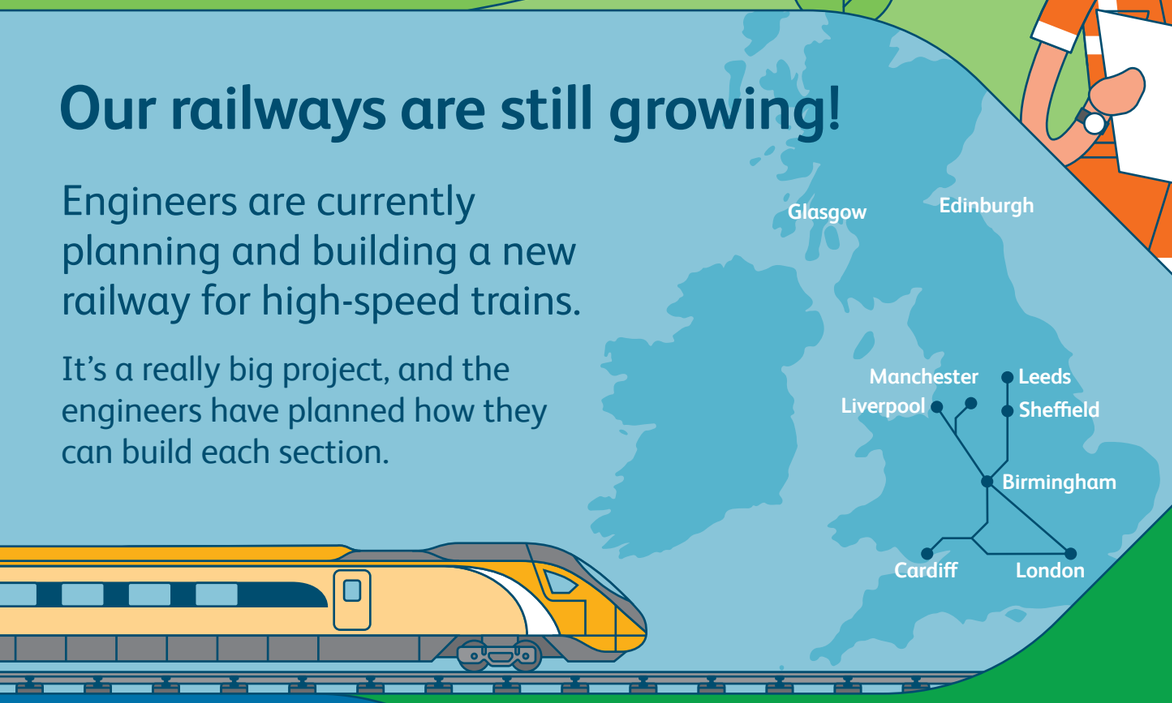
That's why there are loads of tunnels, bridges and even viaducts.

Fun fact – There's a famous viaduct in the Harry Potter films! If you know which film, write it here!

Our railways are still growing!

Engineers are currently planning and building a new railway for high-speed trains.

It's a really big project, and the engineers have planned how they can build each section.



Engineers have great plans for high-speed trains

Their plan includes archaeology, which is digging up the ground to check that there is nothing old that needs to be moved first and preserved.

Then they have to work out how to move pipes for water and gas, demolish buildings, reroute rivers and plant new woodland along new train routes to make sure the local birds and wildlife aren't disrupted.

We need you to be the next inventor and engineer!

Engineers today are always looking for ways to make trains more environmentally friendly.
Tell us if you were designing a train, what would you power it with?

Get creative and give us your best ideas!

We're experts at improving our railways now.

From the first underground tunnels in London nearly 200 years ago, to the latest trains we have today.

But there's loads of stuff we still need to work out. Today, railways are becoming more and more digital – so that's all about computers, technology, maths and science.

That's why we need girls and boys, just like you, to get involved in maths, science, and technology – and help us to design the railways and trains of the future.

There's loads to do, because we will never stop making things better! And we need all your ideas!

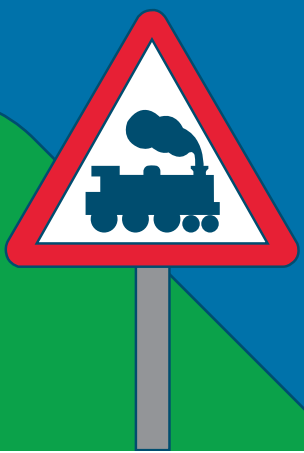
How will trains be powered in the future?
Find the answer by watching the film.

Tell us which lessons at school you think would help you to become an inventor, a problem solver, a creator, or an engineer in the future

Here's where you can find out more information and watch the film again

www.networkrail.co.uk/awesomerailways

#awesomerailways



Railways are fantastic, but always remember to stay safe and stay away from the tracks.