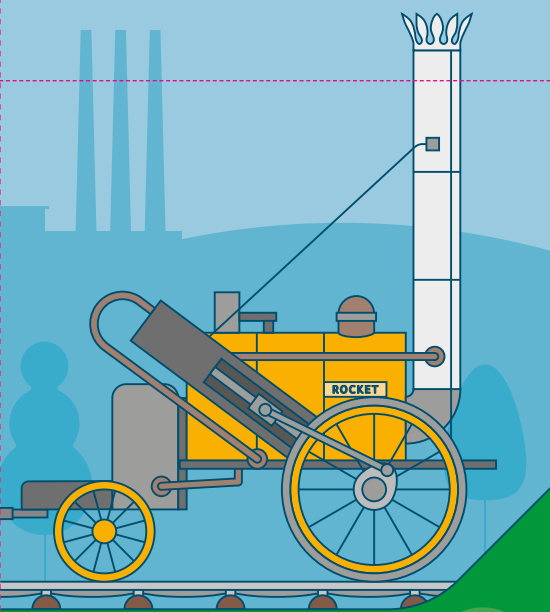
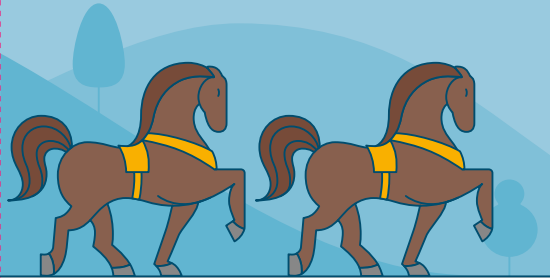


– but where did it start?

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...



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

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?

the cinema,

the airport for your holidays,

and even to see your gran.

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

This is why railways are so epic...

to sports events,

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

Contact us at:
NREarlyEngagement@networkrail.co.uk

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

NetworkRail

Your ticket to finding out what makes our

RAILWAYS

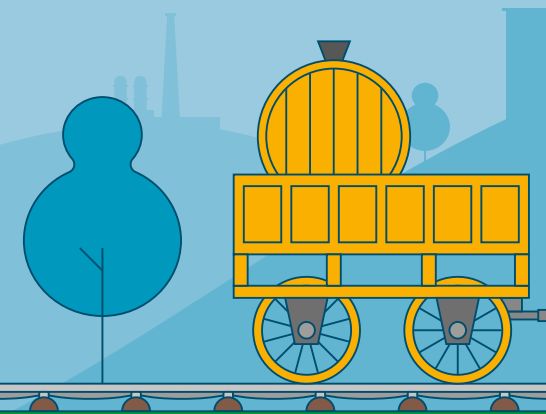
so awesome

There’s railway everywhere

The first train to move on a railway was a really long



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?

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.

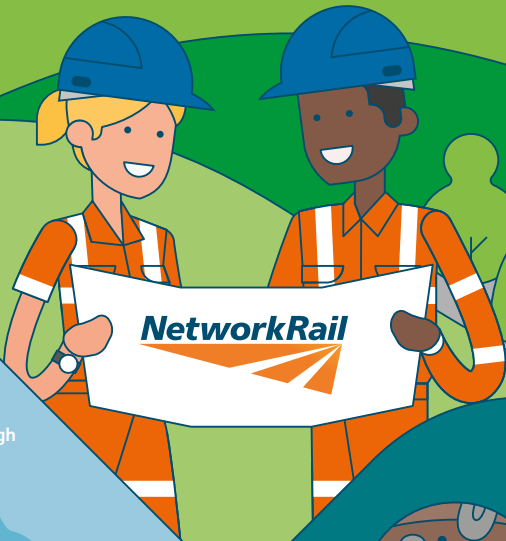
That's why there are loads of tunnels, bridges and even viaducts.

? 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.

About Network Rail

Network Rail own and operate the railway infrastructure in England, Wales and Scotland on behalf of the nation. Our staff help to operate, maintain and grow one of the largest networks in the world!

People depend on Britain's railway for their daily commute, to visit friends and loved ones and to get home safe every day. Businesses depend on the network to get their employees to work on time and move their goods around the country and to ports.

To make all of this happen, we have around 40,000 employees in over 4,000 unique job roles from engineering to recruitment, social media to project management, making Network Rail a very interesting place to work!

How to fold

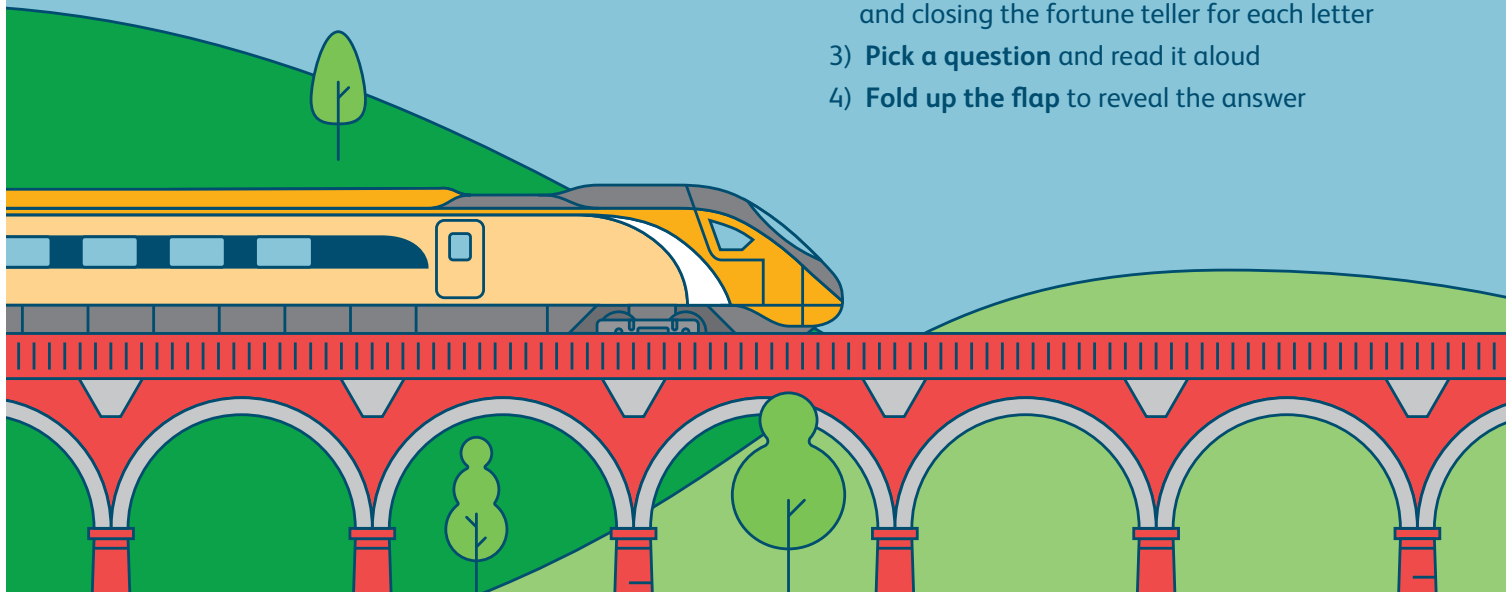
- 1) Fold the paper into **quarters**, with these instructions on the outside
- 2) Unfold the paper
- 3) **Fold over the four corners**, evenly into the middle
- 4) **Flip over** the paper
- 5) **Fold over the corners** on the new side of the paper
- 6) Fold **into quarters** one last time
- 7) Fit your fingers in the slits
- 8) Enjoy!

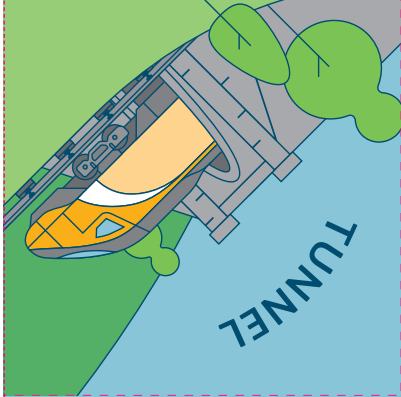
How to play

- 1) Pick a picture
- 2) **Spell out the letter in the picture**, opening and closing the fortune teller for each letter
- 3) **Pick a question** and read it aloud
- 4) **Fold up the flap** to reveal the answer

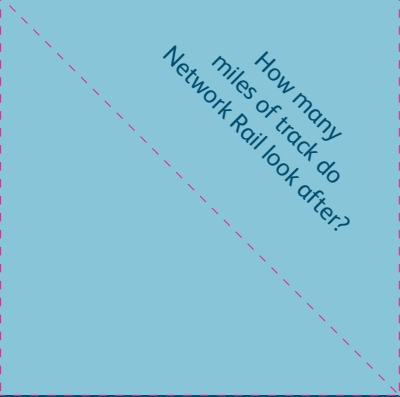
Please cut along the pick dotted line

Please cut along the pick dotted line





How many people do Network Rail employ?



How many miles of track do Network Rail look after?

An intercity train travels at up to 125mph and weighs 400 tonnes – when it brakes, how many football pitches will it travel before it stops?

40,000 people
enough to fill Chelsea's Stamford Bridge stadium!

22,000 miles of track,
which could nearly get you right around the World!

4.8 million people
that's almost as many people as the population of Scotland!

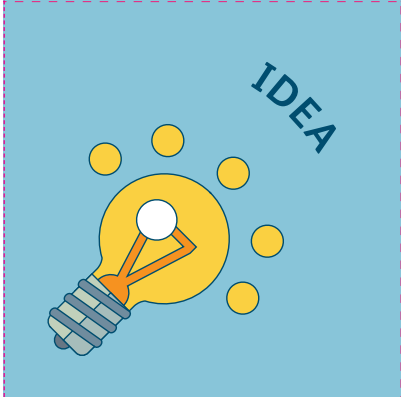
How many people make a journey on the railway every day?

How many miles did our leaf-busting trains travel in 2018 to keep the rail network clear?

1.4 million
This is the equivalent to travelling to the moon and back three times!

Over 10,000 miles
the equivalent of 238 marathons!

How many miles of overhead lines are in the UK train network?



Which famous railway station is featured in one of the Harry Potter films?

What was used to pull the first trains over 200 years ago?

