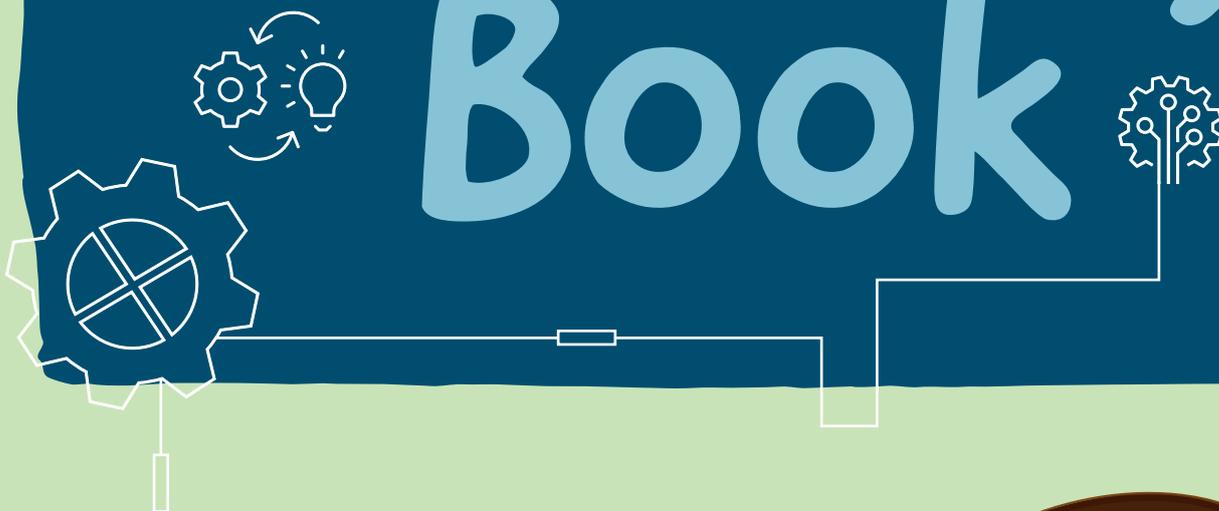


Activity Book



Join Emily the
engineer on a
rail adventure

Win a VIP Day
at the National
Railway Museum

**RAILWAY
MUSEUM**

Win a family
trip on

 **EUROSTAR™**



Educational resources

We think trains and railways are awesome, and that's why we need girls and boys at school today to learn about science, technology, engineering and maths – so that you can help us to invent and design the railways of the future.

We're always eager to tell young people about all the exciting learning opportunities the railway has to offer. Here are some useful materials to help you explore...

Hi, I'm Emily and I'm an engineer on the railway. In this activity book, we are going to go on a rail adventure to learn about engineering. Here are some snippets from some of our games available – head to our website to take part in some fun activities to keep you busy whilst you are at home: www.networkrail.co.uk/stories/educational-resources-for-children
Thanks, Emily





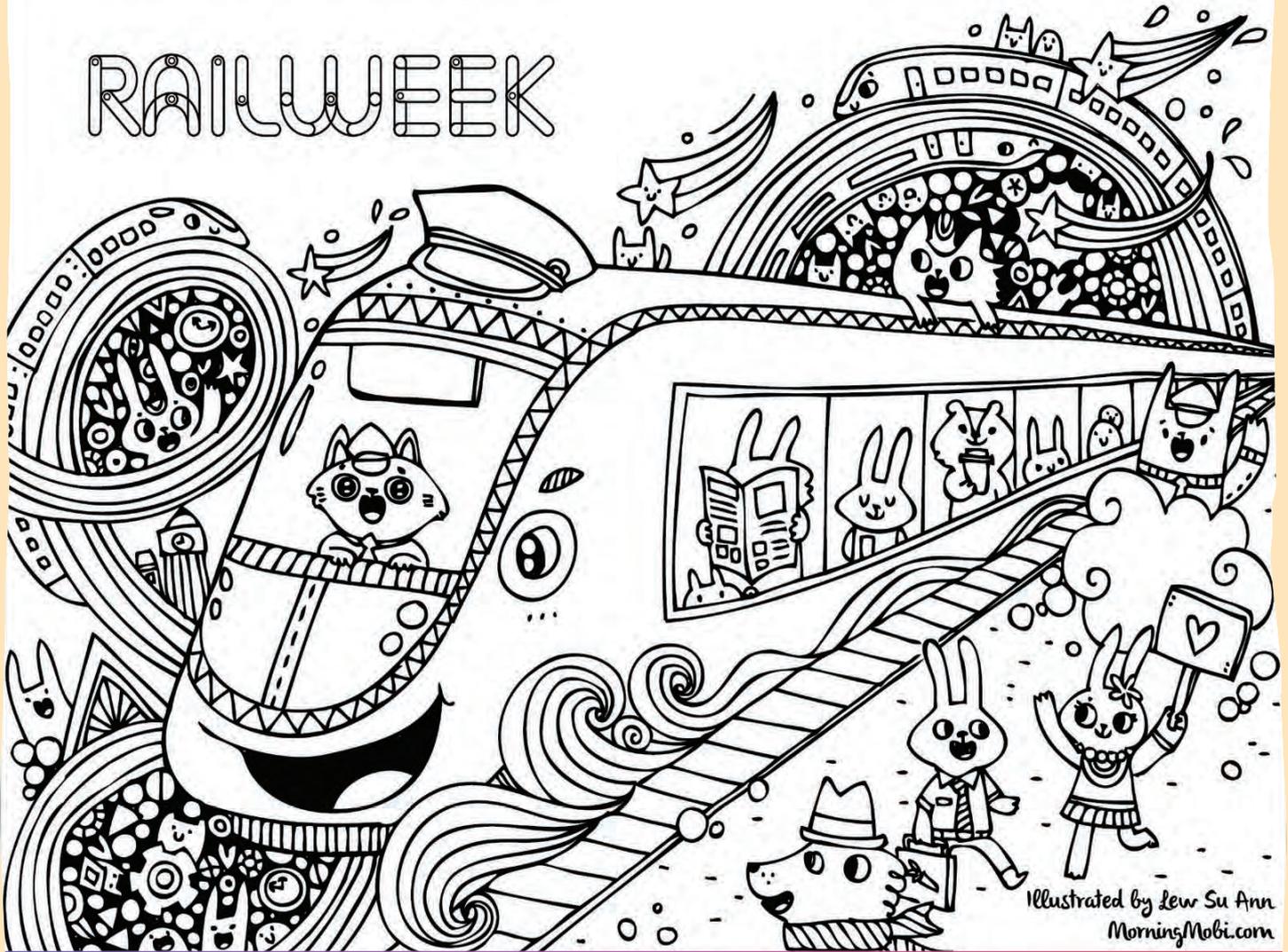
Colouring

Help bring the picture to life by colouring in the train as it leaves the station



YOUNG RAIL
PROFESSIONALS

RAILWEEK



into rail

RAILWEEK

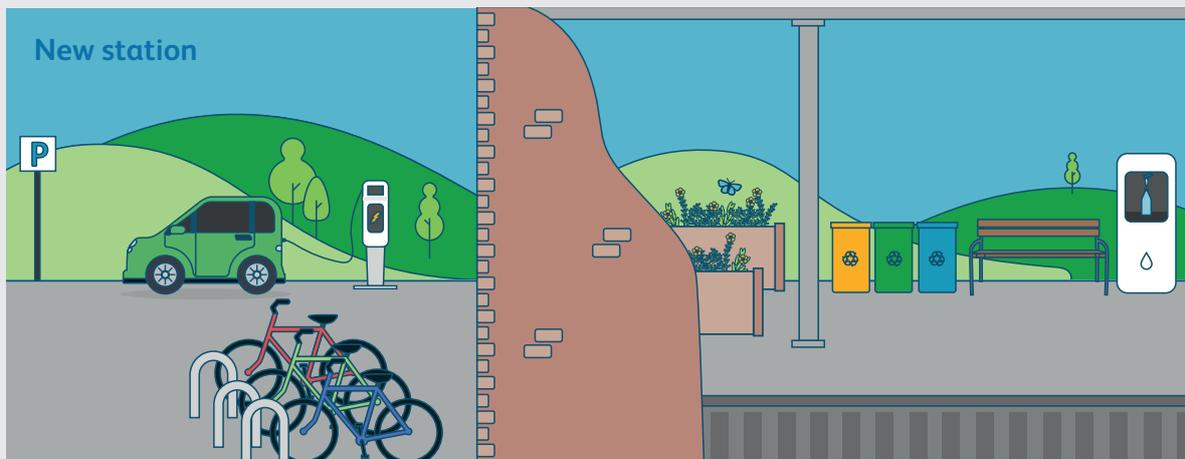
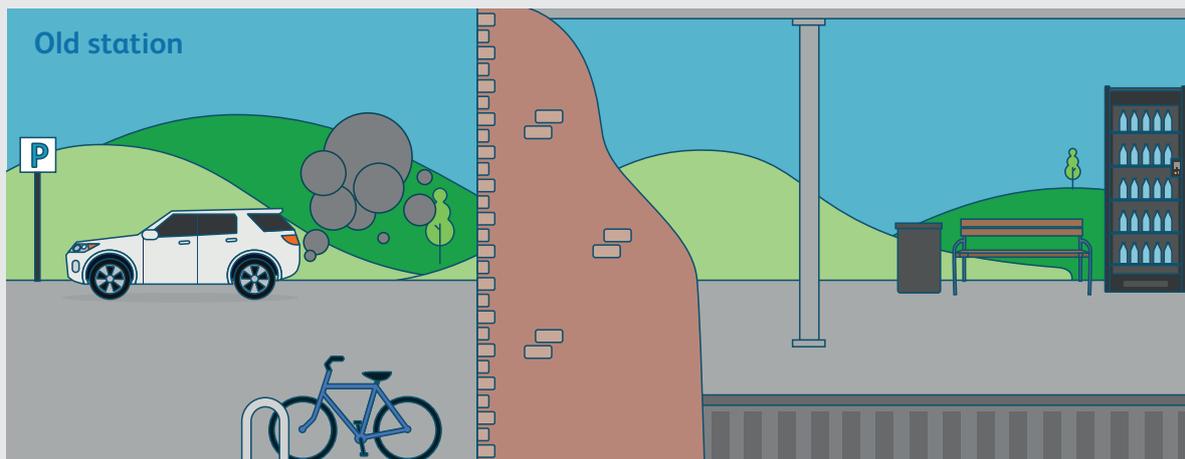
3 - 9 - OCT - 2022

Rail Week celebrates the diverse and rewarding career opportunities available across the rail sector. The dedicated week of activity aims to address the skills shortage in rail-related roles and inspire a generation of young people through a series of virtual events, visits and talks. Find out more at www.railweek.com

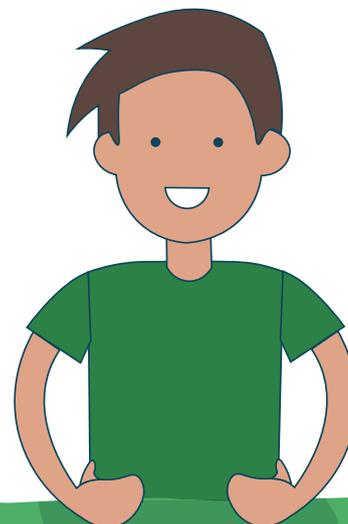
Spot the difference

By making small changes to everyday places like our stations, we can encourage people to be tidy and save energy – looking after the environment.

Can you spot how many ways we have changed this station?



Hi I'm Elliot the Environmentalist.
I work with Emily and other workers
on the railway to make sure we look
after the environment properly.





Word search

Our railway lines pass woods and forests, embankments and people's gardens, and you will see many different trees from your train window.

Can you find them all hidden in the word search below?

YEW

SCOTS PINE

OAK

BIRCH

HOLLY

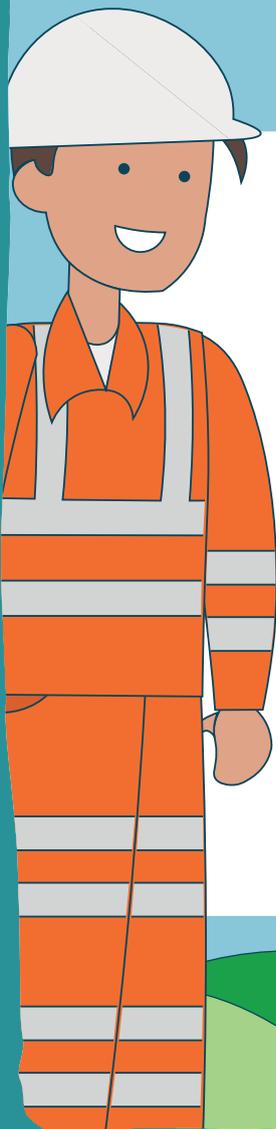
ASH

SYCAMORE

HAZEL

POPLAR

ELDER

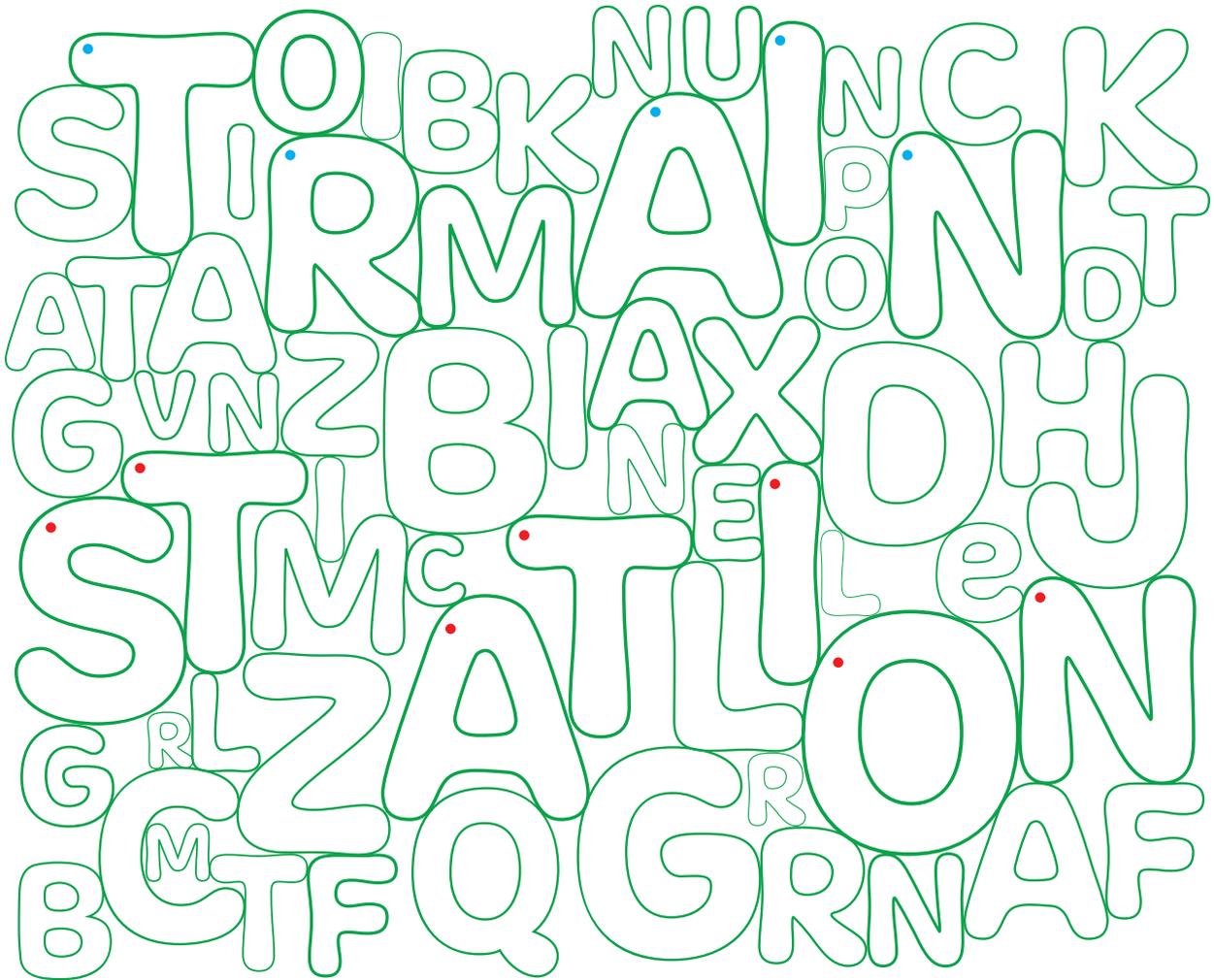


G	P	S	C	O	T	S	P	I	N	E
L	H	O	A	K	P	M	R	S	D	H
E	D	Z	E	L	D	E	R	Y	R	O
C	Y	S	W	K	H	A	I	C	P	L
B	I	R	C	H	A	S	U	A	O	L
P	O	P	I	O	Z	H	I	M	P	Y
A	L	Y	E	W	E	O	C	O	W	O
Z	P	O	O	O	L	O	O	R	E	H
O	S	P	O	P	L	A	R	E	A	Y



What does it say

Colour the letters the same colours as the dot they have, to reveal a message.

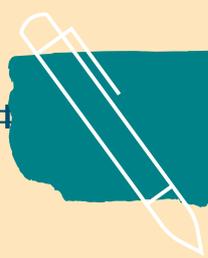


Question: How many people do Network Rail employ?

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



Map maze



An intercity train travels at up to 125mph and weighs 400 tonnes – when it brakes, it will travel the length of 20 football pitches before it stops



Maze

Can you find your way around these routes?

1. London – Penzance
2. London – Swansea
3. London – Norwich
4. London – Manchester
5. Manchester – Glasgow
6. Glasgow – Edinburgh
7. Edinburgh – London



Timetables

At Network Rail, we work round the clock to keep our trains running safely and reliably.

Use the train timetable to answer the following questions.

1.

If you arrive at Manchester Station at 3:00 pm, which train can you buy a ticket for?

.....

2.

How long does Train A take to get from Manchester to London?

.....

3.

If Train B stops at 5 stations along the journey, for 2 minutes each time, how many minutes is the train sat still for?

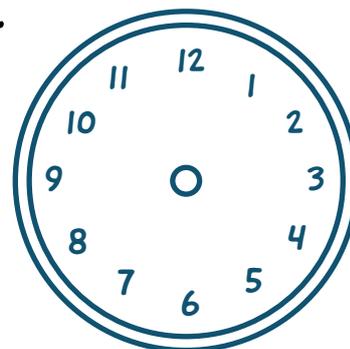
.....

4.

Draw the hands onto this clock to show what time you would arrive in London if you took Train C.

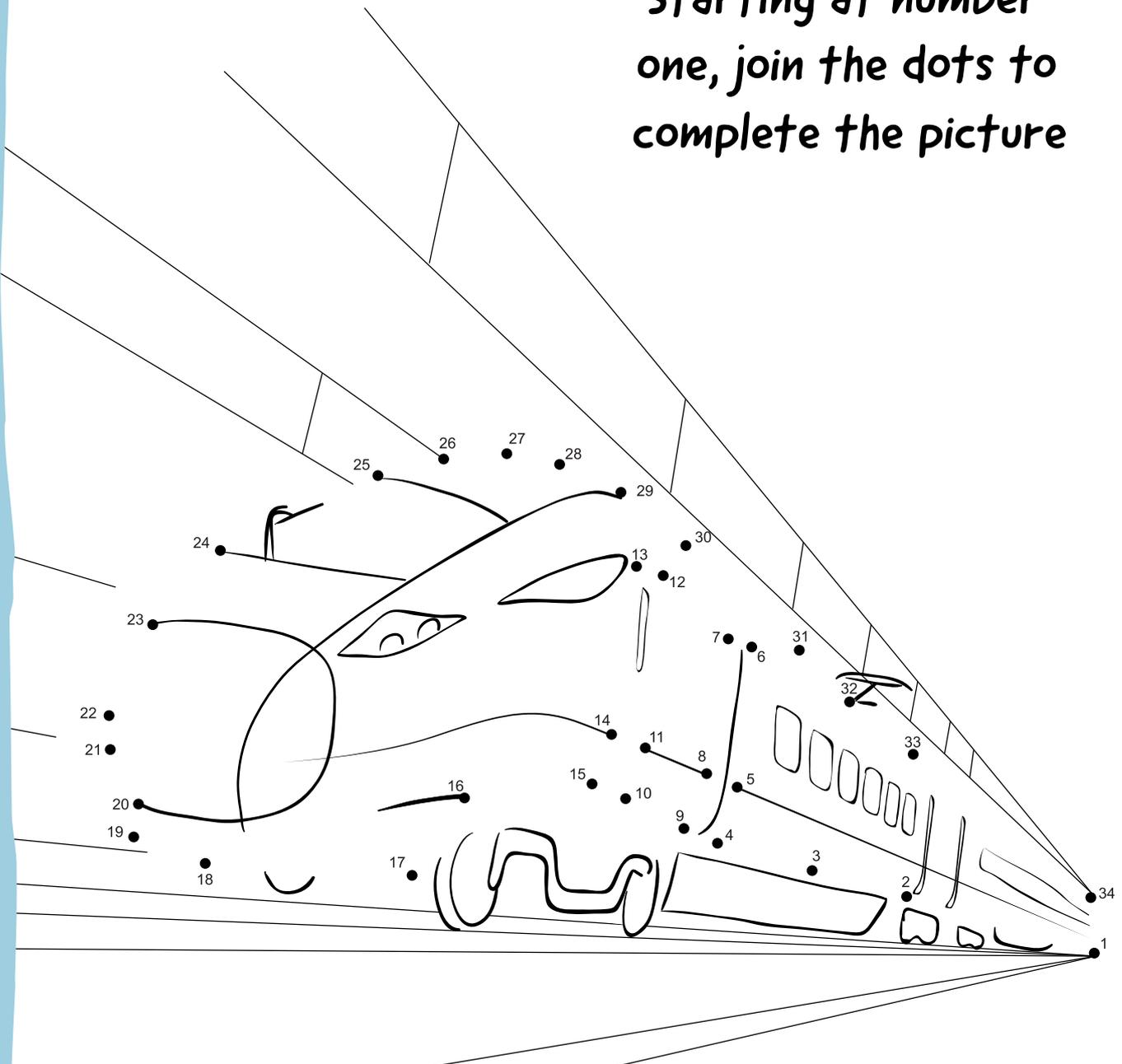
Manchester to London
Timetable

	Depart	Arrive
Train A	9:00 am	11:00 am
Train B	1:00 pm	3:30 pm
Train C	4:00 pm	7:00 pm



Join the dots

Starting at number one, join the dots to complete the picture



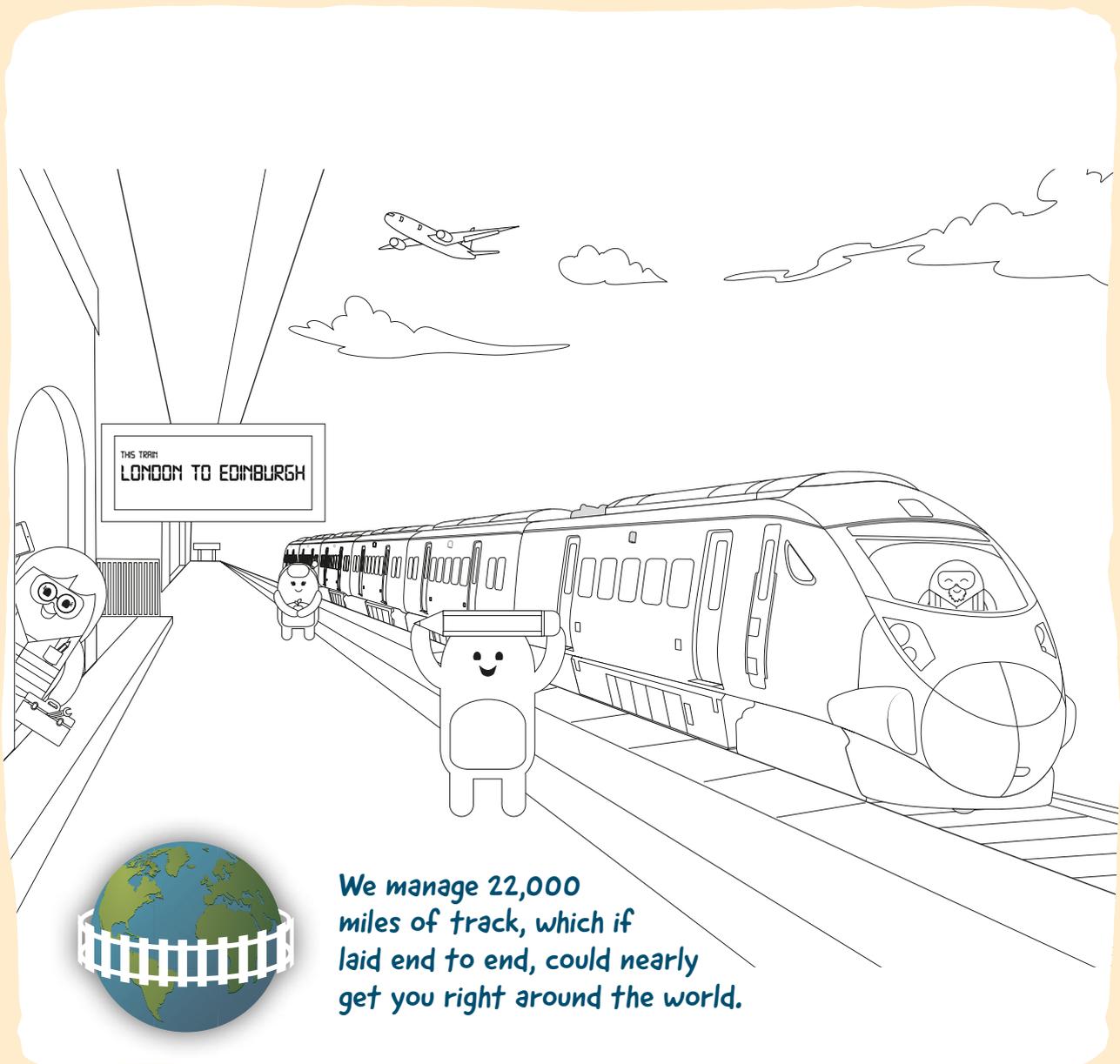
Question: There are around 6.3 million trees growing beside the tracks. Tree leaves on the line can make the tracks dangerous.' How do you think we keep the tracks safe?

Answer: More trains! We have over 50 leaf-busting treatment trains that clean the rails using water jets and then apply a sand-based gel to them to help trains grip the rails.

Colouring in

The Hitachi Rail team have decided to visit the famous Edinburgh Castle – the home of many kings and queens since the 12th century!

Help them get on their way by colouring in the train and station so the team can start their adventure.



Maths

Safety equipment is very important in keeping workers safe on the railway. Can you do some maths to work out what the hard hat, safety glasses and hi-visibility jacket are?

1.  = 16  =

2.  = 10  =

3.  = 21  =

4.  +  =

5.  +  +  +  =

6.  +  +  +  +  +  =

7.  +  +  +  = 17  =

Answers: 1 = 4, 2 = 2, 3 = 7, 4 = 10, 5 = 20, 6 = 26, 7 = 9

What type of Rail Engineer am I?



Can you match the description to the correct engineer?

1.

I understand and look after the software to control the signalling system, the ticketing system and the train information systems. I am a...

- A. Software engineer
- B. Civil engineer
- C. Electrical engineer
- D. Mechanical engineer

2.

I understand and look after the electric motors, controls, radios and electric power. I am a...

- A. Software engineer
- B. Civil engineer
- C. Electrical engineer
- D. Mechanical engineer

3.

I understand and look after the wheels, doors, and coaches of the trains. I am a...

- A. Software engineer
- B. Civil engineer
- C. Electrical engineer
- D. Mechanical engineer

4.

I understand and look after the tracks, bridges and tunnels. I am a...

- A. Software engineer
- B. Civil engineer
- C. Electrical engineer
- D. Mechanical engineer

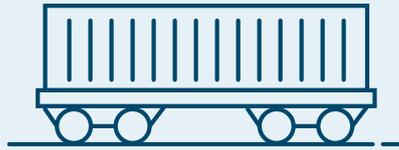


I spy

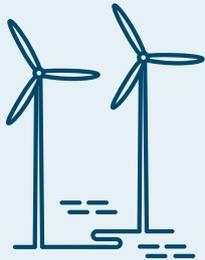
When you travel on the train today, circle all of the things you see out of the window!



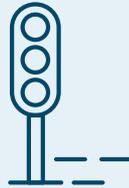
Tunnel



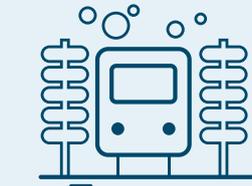
Freight container



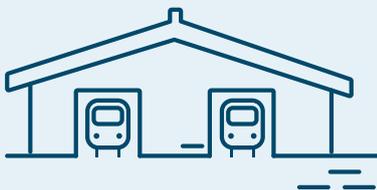
Windfarm



Signal



Train wash



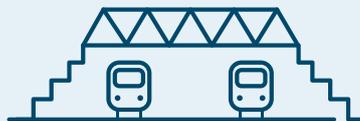
Train depot



Track workers



Level crossing



Foot bridge

Can you spot anything else?

1.

3.

2.

4.



Design a train

Help Emily the engineer design the train of the future. Imagine and draw what your dream train would look like.

Win a return family trip on the Eurostar to Disneyland Paris!



Competition deadline is 30th September 2022.
Send a photo or scanned copy of your poster to earlyengagement@networkrail.co.uk
This competition is open for primary aged school children only.

Win a VIP family day at the National Railway Museum!

Have an unforgettable family day out in York, courtesy of Network Rail and the National Railway Museum. You'll become a museum VIP for the day with an exclusive tour, exciting activities, goody bag and lunch in our beautifully restored rail carriage, the Countess of York. T&Cs apply. (Closing date is Friday 30th September 2022).

T&Cs: The competition is open for young people in key stage one and two (up to age 11). By entering this competition you are giving Network Rail permission to promote your picture submitted, along with your name and age in promotional material. All entries must be submitted by 30th September 2022 midnight by an adult to earlyengagement@networkrail.co.uk. The winner will be announced in November 2022. The prize for the Eurostar is for up to four people to travel on a return journey from London to Paris, Disneyland. The National Railway Museum prize is for a trip on Wednesday-Friday (opening days until May 2023) and includes reference a VIP family visit eg "The prize for the National Railway Museum is for up to four people to travel on a return train journey from any location in the UK to York between Wednesday and Friday, including VIP family activities." The winner must be one of the people travelling on both trips and further booking conditions may apply.



Our partners

This activity book was produced with the kind support of our industry partners:



Network Rail owns, operates and develops Britain's railway infrastructure find out more.

networkrail.co.uk



We offer world class training across the rail industry.

ntar.co.uk/our-courses



We run a high-speed rail link from England to Europe that runs under the English Channel.

eurostar.com



We deliver world-class trains with world-class service.

hitachirail.com



a Genesee & Wyoming Company

We are the market leader in providing innovative freight solutions. We transport all kinds of items across Britain.

freightliner.co.uk/careers



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Atkins, a member of the SNC-Lavalin Group, is a leading global consultancy with over 80 years of design and engineering expertise.

atkinsglobal.com/stem



You may not have heard of us, but each day, practically everyone in the UK benefits from a service we provide. If you've had a hot shower, taken a train or driven to work or had your rubbish collected it's pretty likely we helped with this.

www.amey.co.uk



National Rail

We bring together the companies that run Britain's railway into a single team with one goal – to deliver a better railway for you and your community.

railandeliverygroup.com



We are the professional association for those starting careers in the Railway Industry; promoting, inspiring and developing the next generation of railway talent.

youngrailpro.com



Porterbrook has been at the heart of the UK rail network for over 25 years and owns around a quarter of the national passenger rail fleet.

porterbrook.co.uk



We inspire the next generation of engineers, innovators and thinkers with the past, present and future of railways and engineering.

railwaymuseum.org.uk



We build railways and install train signals and overhead lines. We also use large railway machines, that travel all across the country, to remove and replace old units.

volkerrail.co.uk



Siemens Mobility has been a leader in transport solutions for more than 160 years and employs 3,500 people in the UK. The organisation delivers trains and rail infrastructure that helps keep the country moving and operates from around 70 UK locations from the south of England to the north of Scotland.

mobility.siemens.com



NSAR is a industry membership organisation dedicated to supporting our members and clients navigate the skills landscape efficiently and effectively to create a safe and skilled workforce to deliver a world class railway.

nsar.co.uk

