



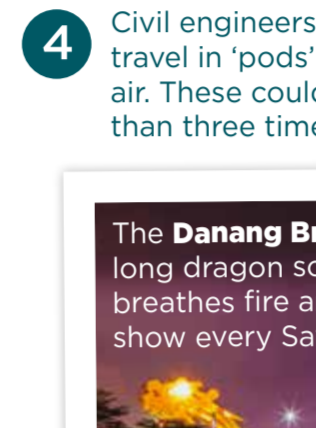
## Fantastic facts

### Did You Know...

- 1 The **Eden Valley Biodome** (glass house) in Cornwall is higher than 11 double decker buses stacked on top of each other!
- 2 Civil engineer John Brodie who designed the **Mersey Tunnel** also invented the football net.



- 3 Civil engineers stopped Italy's famous **Leaning Tower of Pisa** toppling over about 20 years ago. The 800 year-old building still leans a bit (more than 3 degrees)!



- 4 Civil engineers are working on **hyperloops**: high-speed travel in 'pods' whizzing through tubes with no tracks or air. These could let us get around at 1000km/h - more than three times as fast as Japan's bullet train!

The **Danang Bridge** in Vietnam has a 600m long dragon sculpture built into it which breathes fire and water in a spectacular show every Saturday night!



5

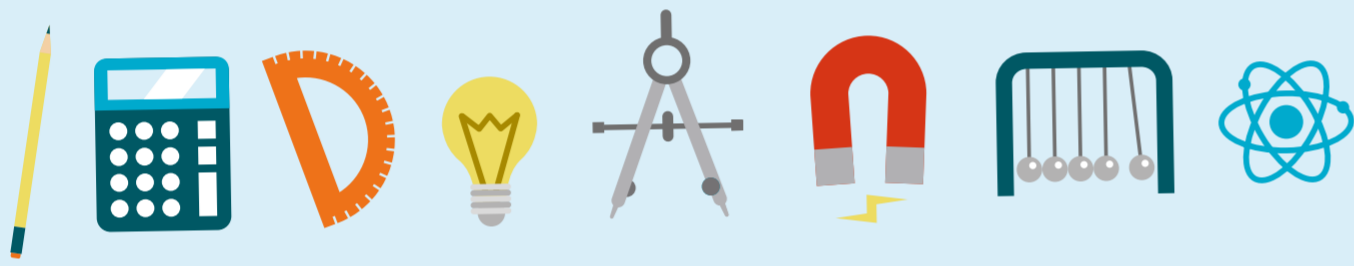
## EN-GENIUS!

### DISCOVER THE AMAZING WORLD OF CIVIL ENGINEERING!



## What is engineering?

Engineers use **maths** and **science** to solve problems.



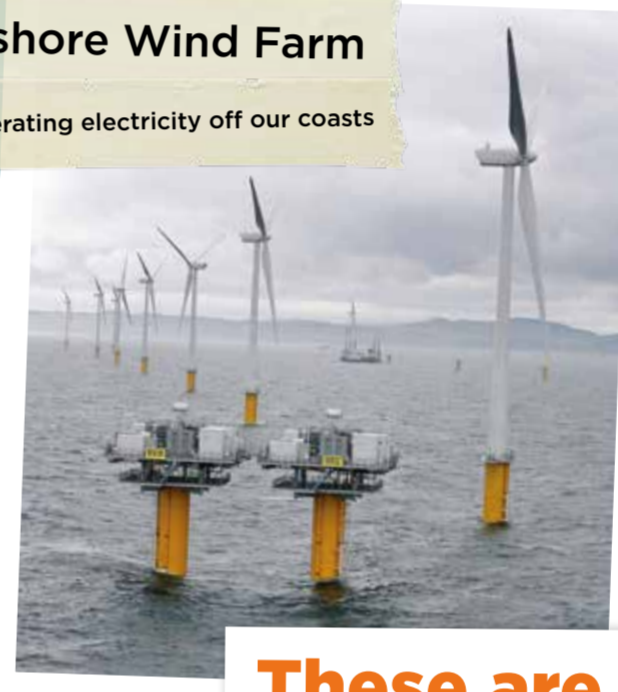
### Civil engineers work on the BIG things that are all around us

From buildings, roads, railways and airports to the huge tunnels and pipelines under the ground that carry water, electric cables and underground trains.



#### Offshore Wind Farm

generating electricity off our coasts



### These are all civil engineering



#### Burj Khalifa

the world's tallest building

#### Crossrail

digging giant tunnels for new underground railways in London

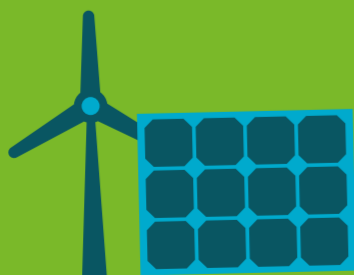
## How does civil engineering help us?

Can you imagine a world where we didn't have buildings to keep us safe and warm, with no transport or energy?

Civil engineers have created our modern world. They're working right now on today's problems like...



Getting **clean water** to people, including those in the poorest parts of the world



Pollution-free **energy**



Designing **buildings** that won't fall down during earthquakes

## I'm a civil engineer

### Brittany Harris

I help prevent people's homes and places of work from flooding and plan ways for people to reach safety during extreme weather.

I also help to provide access to clean water and sanitation (toilets and systems to deal with waste) in places around the world like Peru, Kenya, Saudi Arabia and the UK.

The Institution of Civil Engineers have made me into one of their Invisible Superheroes for their 200th anniversary!

Find out more at [ice.org.uk/superheroes](http://ice.org.uk/superheroes)



# DISCOVER THE AMAZING WORLD OF... CIVIL ENGINEERING!



**DESIGN CREATE**  
Civil Engineers: Shaping the World



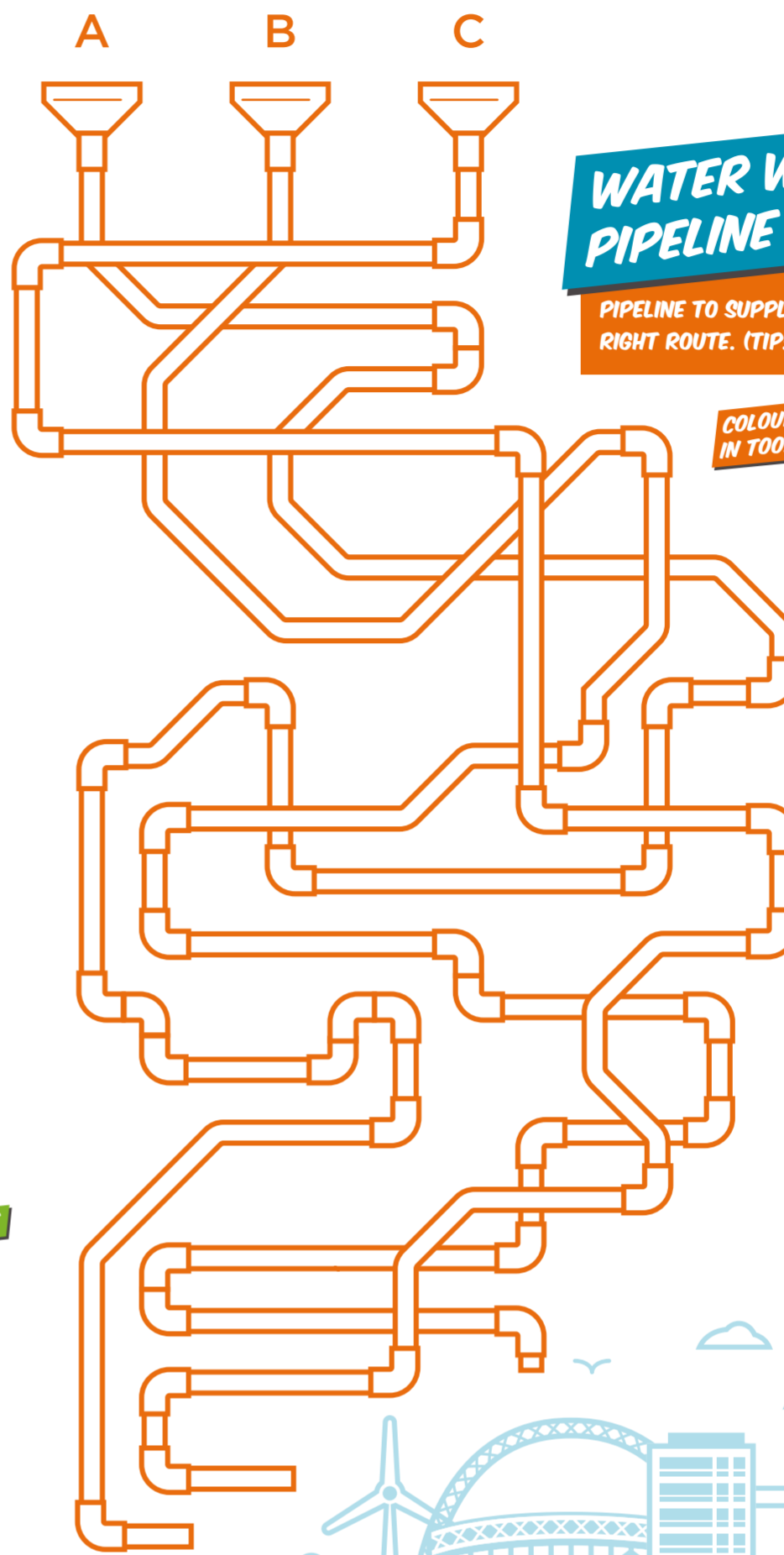
ANDY MITCHELL  
**INFRASTRUCTO**

## INFRASTRUCTO'S WORDSEARCH

HELP INFRASTRUCTO FIND ALL THESE STRUCTURES TO KEEP SAFE.

- SKYSCRAPER
- STATUE
- RAILWAY STATION
- MOTORWAY
- AIRPORT
- SHOPPING CENTRE
- POWER STATION
- SEWER PIPES
- SUSPENSION BRIDGE
- SOLAR FARM
- SCHOOL
- ROAD
- TUNNEL
- HOUSES

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



## WATER WOMAN'S PIPELINE

WATER WOMAN NEEDS TO GET DRINKING WATER THROUGH A PIPELINE TO SUPPLY THE CITY. HELP HER FIND THE RIGHT ROUTE. (TIP: WATER WON'T FLOW UPHILL.)

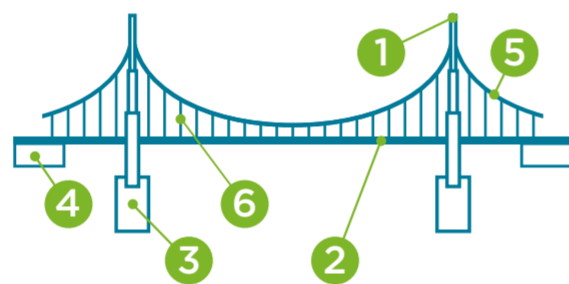
COLOUR ME IN TOO!



BRITTANY HARRIS  
**WATER WOMAN**

## CAPTAIN CONNECTOR'S BRIDGE

FINISH BUILDING THE BRIDGE. CAPTAIN CONNECTOR IS BUILDING A BRIDGE TO HELP PEOPLE CROSS THE RIVER. USING HIS PLANS, DRAW IN THE MISSING PIECES IN THE DIAGRAM BELOW. (TIP: THERE ARE 6 PARTS MISSING.)



1. Tower
2. Deck
3. Pier
4. Anchorage
5. Main Cable
6. Suspender Cable

COLOUR ME IN TOO!



DR ROBIN SHAM  
**CAPTAIN CONNECTOR**



## URBAN ANGEL'S SPOT THE ANIMALS

CIVIL ENGINEERS HAVE TO THINK ABOUT PROTECTING THE WILDLIFE LIVING WHERE THEY ARE WORKING, MAKING SURE THERE ARE STILL PLACES TO LIVE (HABITAT) AND SAFE CROSSINGS OVER OUR ROADS AND RAILWAYS. HELP URBAN ANGEL FIND THE ANIMALS SHE NEEDS TO LOOK AFTER IN THIS STREET.

DR ELLIE COSGRAVE  
**URBAN ANGEL**



COLOUR ME IN TOO!



DORMOUSE

HEDGEHOG

BAT

TOAD

## SUPER STRUCTURE'S FORCES

SUPER STRUCTURES IS BUILDING A NEW SKYSCRAPER AND HAS TO WORK OUT HOW TO LIFT THE IRON GIRDERS SAFELY. THE WEIGHT OF THE GIRDERS NEEDS TO BE BALANCED BY THE COUNTERWEIGHT AT THE BACK OF THE CRANE. WRITE IN HOW HEAVY THE COUNTERWEIGHT SHOULD BE.



LLOYD CLOUGH  
**SUPERSTRUCTURES**

COLOUR ME IN TOO!

Write your answer here



Learn more about civil engineering [ice.org.uk/wice](http://ice.org.uk/wice)  
 Find more fun things to do at [ice.org.uk/educationresources](http://ice.org.uk/educationresources)  
 To get more of these leaflets email us at [careers@ice.org.uk](mailto:careers@ice.org.uk)

