

## Bridge building activity



We're building bridges which will make it easier and safer for people and wildlife to cross the road. We carefully design bridges to make sure that they are strong and work well for everyone that uses them. Now it's time for you to design and build your own bridge.

### The challenge:

Build the strongest bridge possible only using the materials below. The bridge needs to be 30cm long. You can build one or you can work in teams and make different bridges to see who's is strongest. **Good luck building!**





1.

————— **You will need:** —————

- A4 sheets of paper
- Straws
- Spaghetti
- Pens or pencils
- Tape



2.

————— **Rules:** —————

1. Only use the materials listed.
2. You have **45 minutes to build**.
3. It can only be supported at both ends with nothing holding the bridge up in the middle.
4. It must be 30cm long.



3.

————— **Top tips:** —————

- **Good planning and design are important in bridge building.** Make sure you draw and plan out your bridge before you start building it!
- There are lots of different types of bridges. **Think about bridges you've seen when you design it.**
- **Each end of the bridge needs to be strong.** Think about how you can strengthen each end so it doesn't fall over.
- **Folding the paper in different ways can make the bridge stronger.** Try folding it to see what works best.



4.

————— **Time to test:** —————

After you've finished building your bridge you can test how strong it is. Try placing a small toy in the middle of the bridge. If the bridge stays strong, add another toy.

If you've built more than one bridge, place toys on each structure. **The bridge that can hold the most toys is the winner!**



5.

————— **Thinking time:** —————

This activity was about designing and building a strong structure. Now you've finished, think about how it went. Did your bridge work well? If it did, what was it that made it so strong? If it didn't work very well, **what would you do differently if you built it again?**





## Fast facts for teachers

### The project

- The A417 links the M5 motorway and the M4 motorway - it is a useful road for people travelling across England
- We're building 3.4 miles (5.5km) of new road that has two lanes for cars and lorries
- The new road will reduce the number of traffic jams and serious accidents
- The project is very important so the Secretary of State for Transport will decide if the project can go ahead
- Over 900 people told us what they thought of our project at our last consultation in 2019
- The project will cost between £250 million and £500 million to build
- We're turning the old A417 into a new path that can be enjoyed by walkers, cyclists and horse-riders. We're proposing to call the new path The Air Balloon Way, which celebrates Edward Jenner, a famous scientist who lived in the area and was one of the first people ever to fly a hot air balloon
- We'll build 11.6km of new Cotswold dry stone walls – unique to the local area
- We'll create new and better habitats for animals. We'll do this by planting lots of new hedges, bushes, trees and grass



## The area

- The Cotswolds Area of Outstanding Natural Beauty (AONB) is a special place with lots of open, green space and animals. It's the largest AONB in England and Wales and is protected so everyone can enjoy the area for many years to come
- The Cotswold Way National Trail is 102 miles (164km) long and will be 50 years old this year (2020)
- The Gloucestershire Way is 94 miles (151km) long and runs from Chepstow in Wales, through the Cotswold AONB to Tewkesbury in Gloucestershire
- 15 of the 17 species of bat in the UK live in this area
- There are lots of great places to visit in the area including Emma's Grove ancient monument and Barrow Wake, which is home to lots of butterflies. You can also see for miles from the top of Crickley Hill!







## What did the Romans do for the A417?



**The Romans were famous for building long, straight roads.**

**This road was called the Ermin Way and was used by the Romans to travel across the county.**

**Our archaeologists are digging some holes in the ground to see if they can find any interesting old objects that will tell us more about the people who used to live here.**

**The current A417 runs on the line of the old Roman Road from Cirencester to Gloucester.**

**Archaeology is the study of humans by finding and studying things from the past, like ruins of old buildings, roads or old coins and pots.**

**In Roman times people who lived in the local area were quite rich. There were many big important houses, like the one at Great Witcombe.**

## Scavenger hunt

We have lots of information about the project in this virtual exhibition room. Read our exhibition boards and see if you can find the answers to all the questions below. **Good luck!**

1. How many miles of new road are we proposing to build?
2. How many people gave us feedback during our last consultation?
3. Name three things we're now consulting on?
  1.
  2.
  3.
4. What could you plant on a bridge to help animals cross?
5. What does AONB stand for?
6. Can you fill in the missing numbers?

We'll create new and better habitats for animals. We'll do this by planting lots of new hedges, bushes, trees and grass:

- miles of new Cotswold drystone walls
- miles of new hedgerows
- ha of new native woodland
- ha of new scrub, e.g. small bushes and trees
- ha of new species rich, native grassland
- ha of new limestone grassland

## Answers

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1. How many miles of new road are we proposing to build? **3.4**
2. How many people gave us feedback during our last consultation? **900**
3. Name three things we're now consulting on?

**Could be three of the following:**

**a. New crossings**

**b. The change in gradient of the road**

**c. Cowley junction**

**d. Rerouting of the B4070**

**e. Improvements for walkers, cyclists and horse riders,**

**f. Including disabled users**

**g. The replacement of Common Land**

**h. The change in environmental effects**

4. What could you plant on a bridge to help animals cross? **Hedges**
5. What does AONB stand for? **Area of Outstanding Natural Beauty**
6. Can you fill in the missing numbers?

We'll create new and better habitats for animals. We'll do this by planting lots of new hedges, bushes, trees and grass:

**7.2** miles of new Cotswold drystone walls

**4.8** miles of new hedgerows

**19.69** ha of new native woodland

**4.37** ha of new scrub, e.g. small bushes and trees

**14.9** ha of new species rich, native grassland

**55.3** ha of new limestone grassland

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## Wildlife fast facts

The local area is home to lots of different animals. When we build the new road, we'll work really hard to keep them safe - we might even have to find them new homes. **Here are some cool facts about animals living in your area.**



Greater Horseshoe bat

### Bats

There are lots of different species of bats in the area. Their homes are called roosts and can be found in trees, caves and buildings.

We're planting new hedges and trees to help the bats find their way when they are flying at night. We're also creating new, safe places for them to live. The bats will also have their very own tunnel under the road so they can cross it safely!

#### Fun fact!

Bats eat moths, mosquitoes and beetles. One bat can eat up to 3000 insects a night!



Photo from Badger Trust website

### Badgers

There are badgers living in this area. They live underground and their homes are called setts.

We're building tunnels under the road to make sure badgers can safely cross and visit the places where they like to find food.

#### Fun fact!

Badgers eat mainly earthworms. An adult badger might eat 200 worms a night!



## Reptiles

There are snakes, slow worms and lizards living locally. They are usually found in long grass and under rocks.

We'll have to move some of these reptiles out of the way to a new home. We're creating nice habitats with piles of stones and logs that they can hide in.

### Fun fact!

The adder is the only poisonous snake in the country.

Photo from  
RSPB website



## Insects

There are lots of insects that live in the area. They are usually found in grassland and meadows.

We're creating new grassland with wild flowers to provide food for bees and other insects.

### Fun fact!

There are around 20,000 different species of bee in the world!

## Barn owls

We've found barn owls nearby. Barn owls like roosting in barns or trees and hunt in grassy fields and woodland.

We're planting trees so they have lots of places to roost. New grassland fields will provide habitats where they can fly at night and find their food.

### Fun fact!

Barn owls like to eat small mice or voles for their dinner!



# Wildlife and habitats matching activity

We've found lots of wildlife living in the area. Different animals can be found living in different homes, called habitats. Sometimes we need to move animals to new habitats to keep them safe. **Match each animal on the left to its habitat on the right.**

**Bats**



**Setts**

**Badgers**

Photo from RSPB website



**Long grass**

**Barn owls**



**Trees, barns and caves**

**Reptiles**

Photo from RSPB website



**Woodland edge and grassland**

**Insects**

Photo from Butterfly Conservation Trust



**Grassland**

**Roman snails**

You can only handle these protected snails with a special license



**Trees and barns**

# Answers

**Bats**



**Badgers**

Photo from RSPB website



**Barn owls**



**Reptiles**

Photo from RSPB website



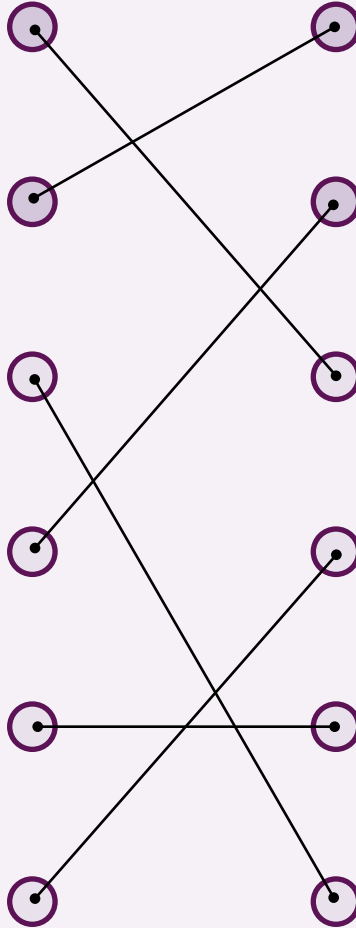
**Insects**

Photo from Butterfly Conservation Trust



**Roman snails**

You can only handle these protected snails with a special license



**Setts**



**Long grass**



**Trees, barns and caves**



**Woodland edge and grassland**



**Grassland**



**Trees and barns**



## Wordsearch

Check out the wordsearch below and see if you can **find all the words!**

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

- |                                     |                                   |                                 |
|-------------------------------------|-----------------------------------|---------------------------------|
| <input type="checkbox"/> road       | <input type="checkbox"/> traffic  | <input type="checkbox"/> bridge |
| <input type="checkbox"/> safety     | <input type="checkbox"/> wildlife | <input type="checkbox"/> badger |
| <input type="checkbox"/> junction   | <input type="checkbox"/> build    | <input type="checkbox"/> tree   |
| <input type="checkbox"/> roundabout | <input type="checkbox"/> habitat  | <input type="checkbox"/> bat    |

## Answers

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

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