

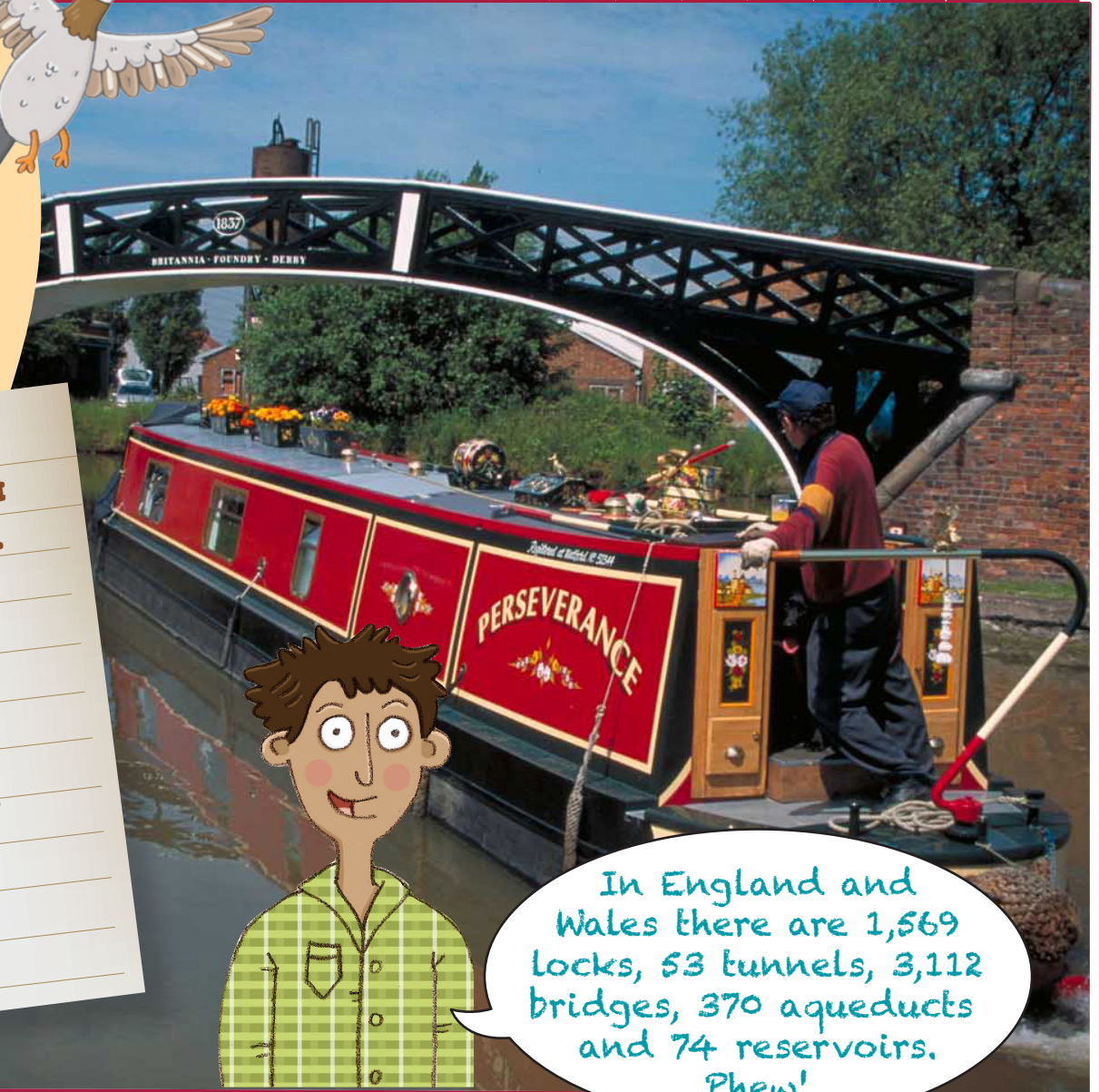


All About Canals

**These notes are designed to help you
with homework and other projects.**

It will help you to discover:

- * how canals are different from rivers
- * why canals were built
- * who built canals and when
- * weird and wonderful canal inventions
- * who looks after canals today
- * your nearest canal.



In England and
Wales there are 1,569
locks, 53 tunnels, 3,112
bridges, 370 aqueducts
and 74 reservoirs.
Phew!

Canals and rivers

Canals are manmade

They were built to carry goods by boat from one place to another.

Rivers are natural

They are formed when rain falls in the hills and flows down to the sea.

Some rivers are made wider and deeper to transport goods. These are called 'navigations'



Here are six pictures of canals and rivers. Can you spot which are which? Answers are at the bottom of the page.



1



2



3



4



5



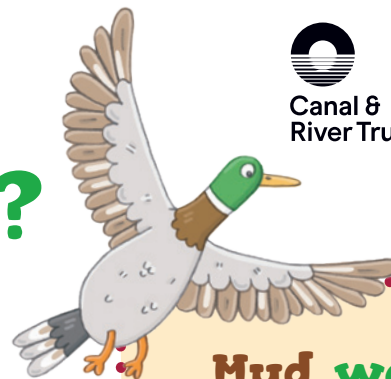
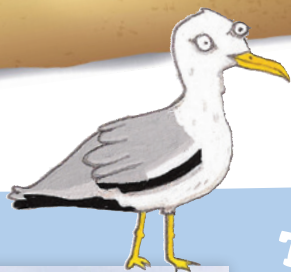
6

Answers: 1 Coventry Canal; 2 River Ouse at York; 3 Kennet & Avon Canal at Bath; 4 The Grand Union Canal at Tring; 5 Digbeth Branch Canal, Birmingham; 6 River Severn at Worcester.

Who built the first canals?

Ancient canals

The first canals were first built hundreds of years ago in Egypt, Mesopotamia (modern-day Iraq and Syria), China and India. They were usually small channels built to take water from rivers to fields to grow crops. Some larger canals were built to transport cargo such as grain.



Mud, weeds and potholes

After the Romans left, canals silted up and became un navigable. Roads fell into disrepair. Some bulky goods such as timber, stone and coal were transported by river. But there were big hazards such as fierce currents, low bridges and weirs.

The Romans and canals

In Britain, the Romans built the first canals along with roads and cities. Some people think they built the Fosdyke Navigation in Lincolnshire. It connected Lincoln, an important Roman town, to the River Trent.



← The Fosdyke Navigation today.

Goods were transported by horse and cart or packhorses. Journeys were rough and slow



The coming of the canals



More coal, please

Much, much later, by the mid 1700s, Britain was becoming an industrial country.

As industries grew, manufacturers needed more coal to power machines, mills and furnaces. Businessmen hit on the idea of building canals to deliver coal faster.

The Duke of Bridgewater (1736 -1803)

The Duke of Bridgewater owned coal mines near Manchester. He gave money to build a canal to deliver coal from his coal mines to his factories.



The Bridgewater Canal was opened in 1761.

Business booms

The Bridgewater Canal was a great success. The cost of coal halved, business boomed and lots of companies were set up to build more canals. Within 80 years, over 3,500 miles of waterways linked the great ports to all the industrial areas of Britain.



The Duke of Bridgewater.

I became one of the richest men in England because I could deliver coal quicker and cheaper than anyone else

Precious pots

I wanted a safer way to transport my delicate pots. I gave money to build a canal from my factories in Stoke-on-Trent called the Trent & Mersey Canal

Josiah Wedgwood, a famous potter.

Josiah's pots were safer because the journey was smoother

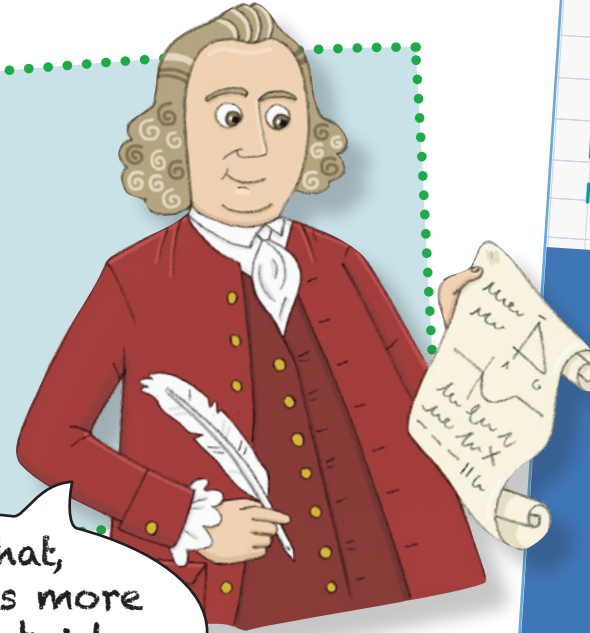


Canal engineers

Building canals meant solving big engineering problems. This attracted great engineers.

James Brindley (1716 -1772)

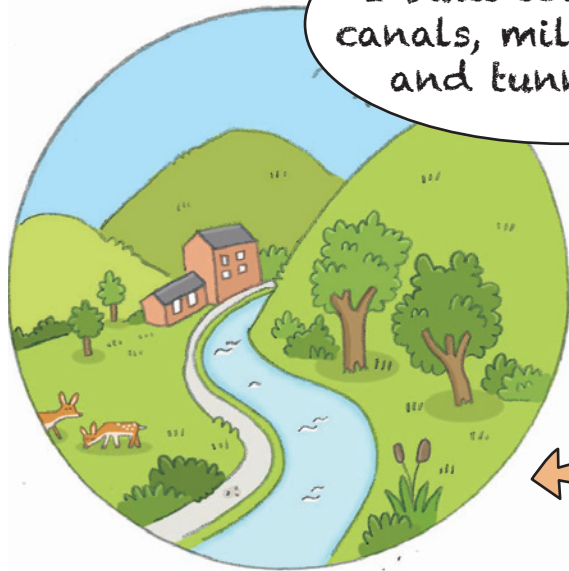
James Brindley trained as a millwright. The Duke of Bridgewater heard about his reputation for inventing and fixing machinery and asked him to help plan the Bridgewater Canal.



After that, I built loads more canals, mills, bridges and tunnels too

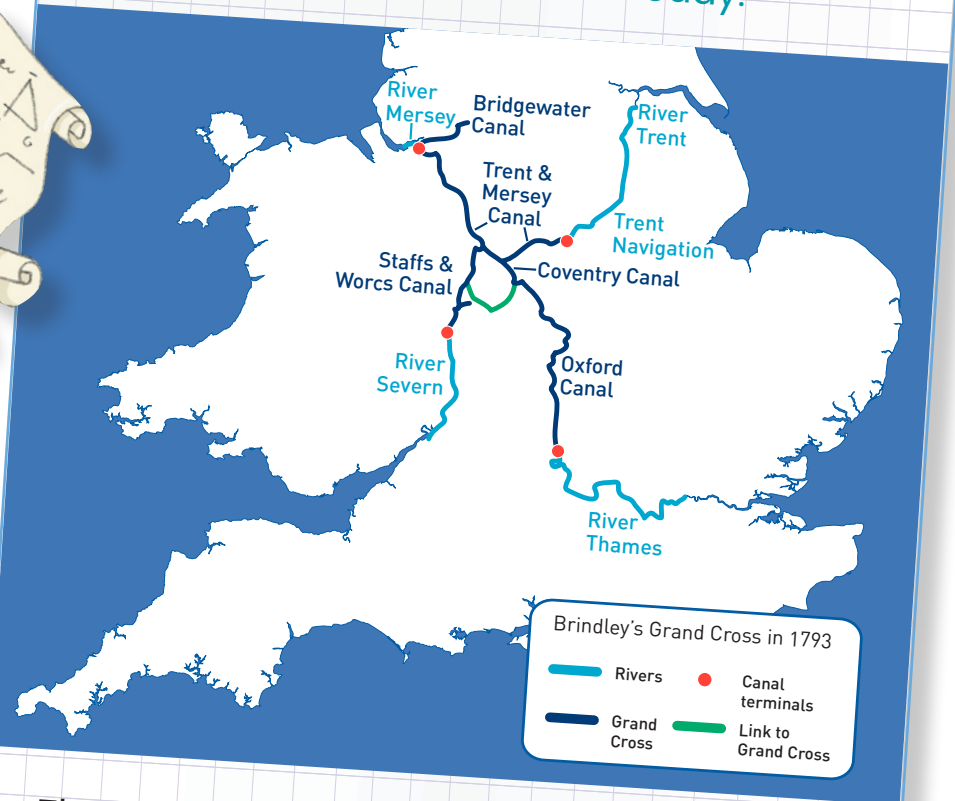
Contour canals

James' canals followed the natural contours of the land. They were easy to dig because they avoided obstacles like hills but they were long, winding and expensive to build.



The Grand Cross

After the success of the Bridgewater Canal, James planned a great network of canals to connect the four main rivers of England (the Mersey, Trent, Severn and Thames) - just like motorway and train networks today.



The network was called The Grand Cross because it looked like a giant cross spread over the country.

Canal engineers

Planning and building canals attracted other clever engineers. New technology and more experience meant problems such as moving boats uphill, could be solved in different ways.



William Jessop (1745 -1814)

William Jessop was the chief engineer of the Grand Junction Canal. He designed wide locks to take big boats. Bigger boats meant more cargo – and more money!



↑
The Grand Junction Canal is now part of the Grand Union Canal. It's the longest in Britain!



Thomas Telford (1757-1834)

Thomas Telford, was the son of a shepherd. One of his great achievements was designing Pontcysyllte Aqueduct in north Wales. It was one of the first civil engineering projects to use cast iron.

Teams of navvies
(short for navigators)
dug the canals

Digging the canals

Navvies used picks, spades and muscle power to dig the canals. They made them waterproof by lining them with clay and treading it down hard, or by driving cattle along the channel to trample the clay down. This is called 'puddling'.



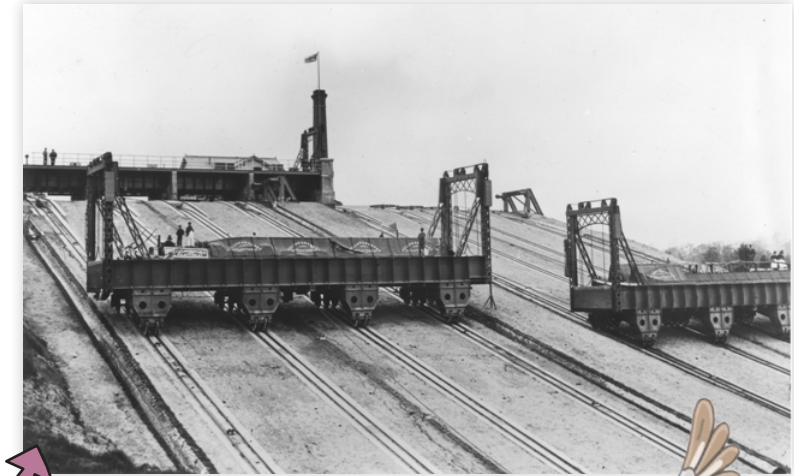
1 Foxton Inclined plane

Foxton Locks in Leicestershire were a bottleneck and very slow to use. To solve the problem, tracks were built to carry boats up and down the steep hill in giant tanks of water. This system is called an inclined plane. Can you spot it on page 9?

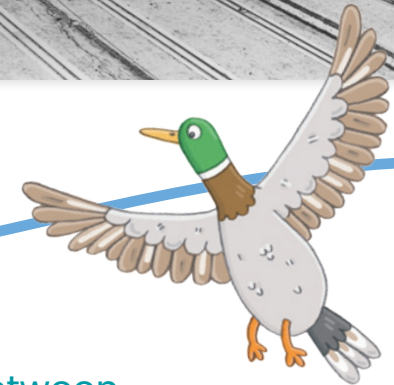
Four amazing inventions



The machinery was so expensive to run that it closed after only 10 years



When Foxton Inclined Plane opened in 1901, it became a tourist attraction.

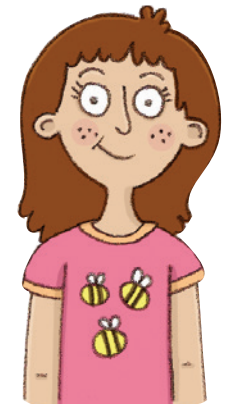


2 Anderton Boat Lift



Anderton Boat Lift moved boats between the Trent & Mersey Canal and the River Weaver, about 14 metres (50 feet) below. It saved precious time because cargo no longer had to be moved from boats on the river to boats on the canal. Instead, boats were lifted up, two at a time, in giant tanks of water using hydraulic machinery. Can you spot it on page 9?

The Anderton Boat Lift opened in 1875

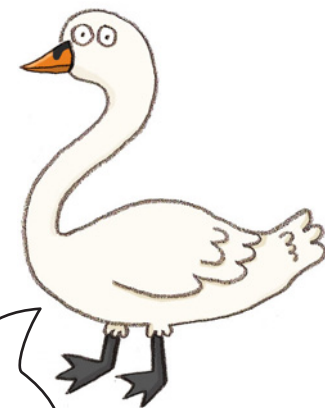




Four amazing inventions

3 Pontcysyllte Aqueduct

Pontcysyllte Aqueduct in north Wales was built to carry the Llangollen Canal across the valley of the River Dee. Completed in 1805, it's a cast iron trough supported on giant stone pillars 39 metres (126 feet) high. Can you spot it on page 9?

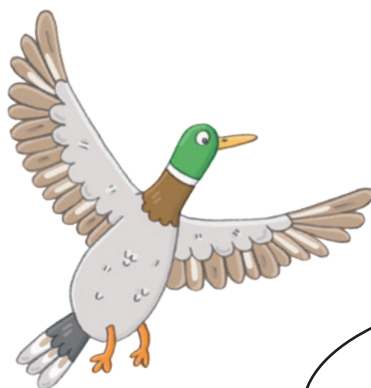


The top of the pillars are hollow to keep the structure as light as possible

4 Caen Hill Locks



Caen Hill Locks



Caen Hill Locks were built over 200 years ago by John Rennie (1761-1821). He built the giant flight of 16 locks to take the Kennet & Avon Canal uphill. Each lock has a huge side pond to prevent the canal from running out of water.

It can take up to four hours for boats to get through the locks





Boats and cargo

There are many types of boats on canals. Narrowboats were designed for narrow canals. Larger boats such as barges, were built for broad canals and rivers.

All boats were designed to take as much bulky cargo as possible.



Boaters

Boats were owned either by families or companies. At first, the people who worked them were mostly men. Then, in Victorian times when railways started to deliver goods faster and cheaper than canals, women and children helped out.



The cabin where families cooked, ate and slept was very small.

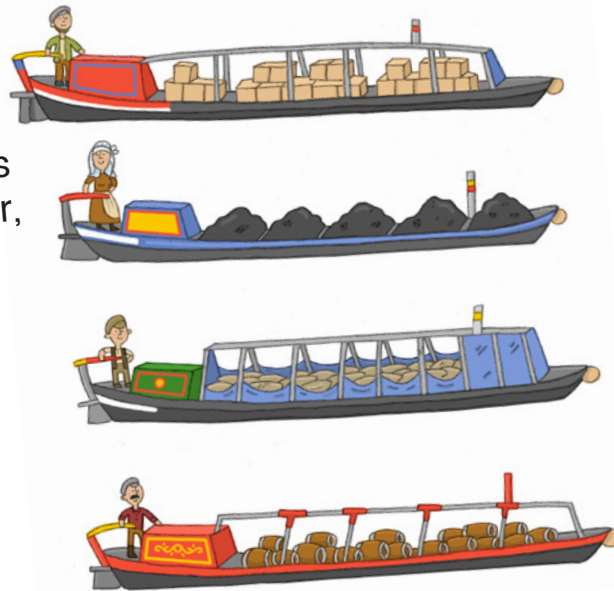


Boaters' children often led the horse that towed the boat in the early days of canals



Cargo

Cargo included goods and materials such as bulky timber, smelly manure or dirty coal.





Who looked after canals?

Canals needed a lot of care to prevent leakages and keep them clear. They still do!



Lengthsmen

In the past, canals were divided into 'lengths'. One man, called a lengthsmen, looked after that section, checking for damage.

Pilers

Canals banks have to be constantly repaired so that no water escapes. Giant stakes called piles are driven in to the edge of the bank to prevent wear and tear.



In the past, pilers used this machinery for driving the piles in



The old piling rig at Hatton Locks

Lock Keepers

Lock keepers made sure the locks were full of water. Sometimes they sorted out arguments amongst boaters too! Look for the lock keeper's cottage on page 9.



Wharfingers

Wharfingers were in charge of the wharves where goods were loaded and unloaded. They had to make sure that valuable cargo such as tea, was kept safe from thieves!



Toll Keepers

Toll keepers collected the money (tolls) people paid to use the canals. Toll houses had lots of windows so that the toll keeper could keep an eye on who was coming and going from different directions.



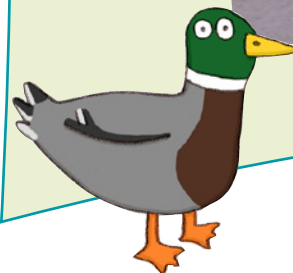


As roads and railways became a cheaper and quicker way to deliver goods, canals were used less often. By the 1930s, many had become overgrown and derelict. Others were built over.

After the Second World War, people became interested in canals again and formed groups to help to restore them. Many people still give up their free time to help look after canals.



Today, the Canal & River Trust looks after most of our inland waterways. You may spot barges delivering cargo on the larger canals. But you are much more likely to see people in holiday narrowboats, cycling along towpaths or spotting wildlife and enjoying canals for pleasure.



For more information log on for:

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- Build a Canal game
- Waterways Today Topic Pack

