



Project 2 Years 5 + 6

What is stopping us going further?

DT + Science + History

Outcome 1 (04/01/2021)

Explore best design for ship

Weeks 1	Science History	Identify initial forces Saxon Port of Bristol Location on the river- crossing point
Week 2	Science DT	Explore different sail areas Explore mechanism: gears and levers
Week 3	DT History	Investigate with the model ship (sails / mast) Bristol starts - Explore Cabot sailing to America

Outcome 2 (25/01/2020)

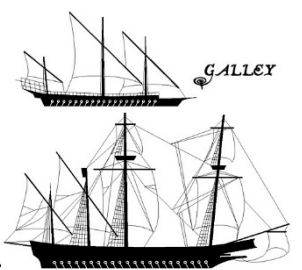
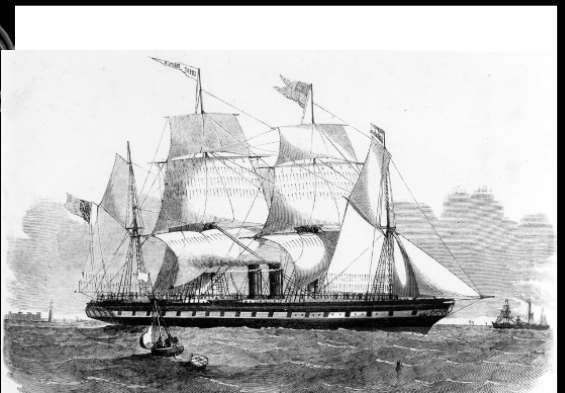
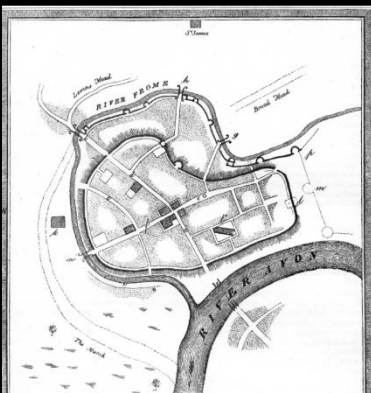
Construct a ship

Weeks 4 + 5	Science DT History	Explore mast lengths, propellers-Identify forces Design and construct ship Understand Bristol slave trade SS Great Britain
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Outcome 3 (08/02/2020)

Adapt your design to create an effective ship

Weeks 6	Science DT	Understand which forces are unbalanced/ which have the most effect Evaluate own ship
Week 7	DT History	Review and update own ship Bristol Victorian trade
Week 8	History	Building Avonmouth and the Royal Portbury

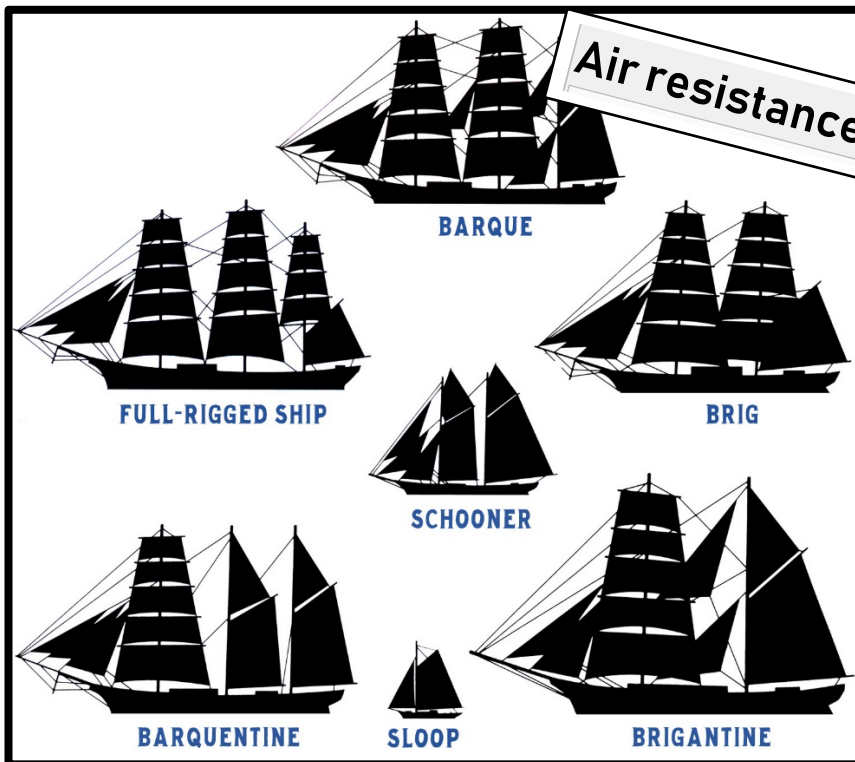


GALLE ASS

What's stopping it going further?

Knowledge Organiser: Project 2

Years 5 + 6



Different sails



Isaac Newton



Who was Isaac Newton?

Born in 1643, Isaac Newton was famous for his work on **Gravity** and his three laws of motion. Other works that Newton contributed to was light and colour as well as calculus, which is a branch of mathematics.

The well known and famous story of the apple falling from a tree inspired his work on gravity and showed how much he observed the world around him.

Isaac Newton studied at Cambridge but had to leave due to the great plague. He then spent the next couple of years studying in isolation at his home, where he developed theories on gravity and calculus. Later on in his life, Newton became Warden of the Royal Mint in London, in 1696.

Sail Rig Types



TYPES OF RIG



LATEEN



GAFF



BERMUDA

foremast

mainmast

mizzenmast

MAST NAMES

ONE-MASTED RIGS



BERMUDA CAT



BERMUDA SLOOP



GAFF CUTTER

TWO-MASTED RIGS



GAFF YAWL



GAFF KETCH



GAFF SCHOONER



BRIG

THREE-MASTED RIGS



BARQUE



FULLY RIGGED SHIP

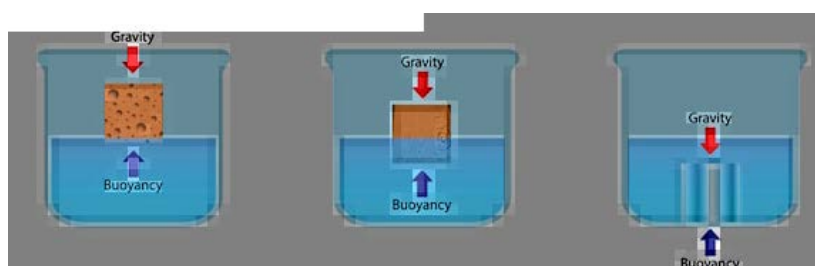


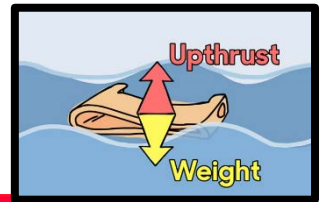
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Water resistance

Gravity

Buoyancy force





Gravity



FORCES

Mass is the total amount of material an object is made of.

It is not a force and is measured in kilograms.

Forces are measured in **newtons** using a force meter.



The word 'newton' comes from Sir Isaac Newton, the first person to theorise about forces.



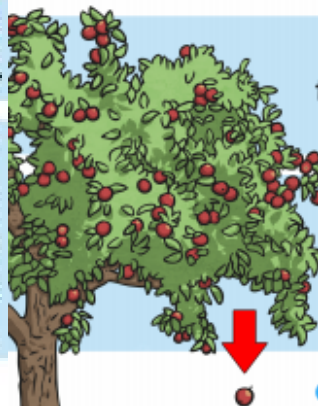
GRAVITY

Gravity is the force that pulls the Earth and other planets towards the Sun.

It also keeps us and other objects on the ground.

Weight is the pull on the mass of an object by the Earth.

We can represent gravity with an arrow pointing towards the Earth.



FRICTION

Friction is the force that stops or slows us when trying to move an object.

If the object is already moving, friction is **slowing it down**.



Friction is a push against a moving object.

It happens when there is contact between two materials, like a brake pad on a bicycle tyre.

AIR RESISTANCE

Air Resistance is a type of friction that occurs between the air and another material.

It is the force that acts in parachutes so that we don't crash to the ground.



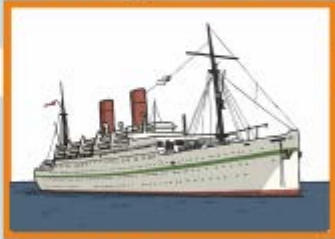
Upthrust is not a type of friction. It is when the gas or liquid below something pushes up more than the gas or liquid above.



BUOYANCY

Buoyancy is the force that pushes an object upwards.

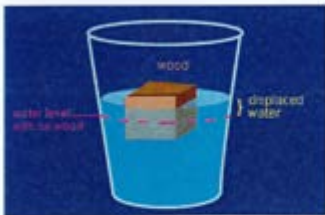
A boat doesn't sink because there is a buoyant force (**upthrust**) created by the volume of water.



It is the **balance** of the gravity pushing downwards and the buoyancy pushing upwards that keeps the boat floating.

Archimedes Principle

When you place an object (e.g. a block of wood) into water, it displaces some of the water and the water level goes up.



If you could weigh the water that the wood displaces, you would find that its weight equals the weight of the wood.

This is called the Archimedes principle and was discovered by a Greek philosopher called Archimedes who lived during the 3rd century BC. He discovered this when he got into a bath and the water displaced by his body flowed over the sides. He realised that there was a relationship between his weight and the volume of water displaced. He was so excited with his discovery that he shouted "Eureka" (meaning "I've found it!") and ran through the streets naked!

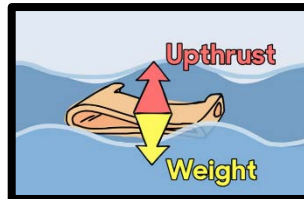
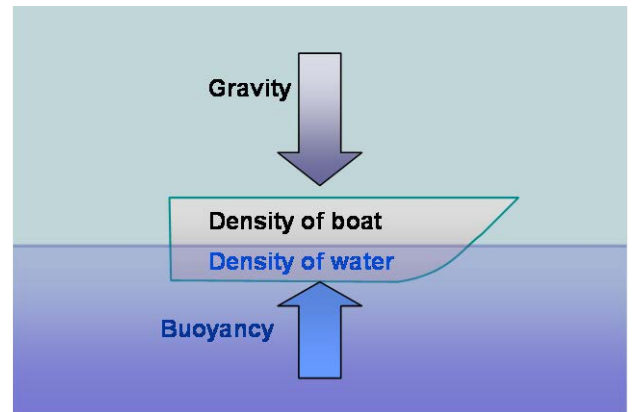
Equal and Opposite Forces

When a ship is launched, it sinks into the sea until the weight of water it displaces is equal to its own weight.



The weight of the ship (which is a force) is exerted downwards onto the water. The water then provides a buoyancy force back upwards which is equal to the weight of the ship. This is because for every force there is an equal and opposite force.

As the ship is loaded it sinks deeper, displacing more water and so the buoyant force continuously matches the weight of the ship and its cargo. If you load a ship with too much cargo and it is too heavy, it will displace so much water that the water level will rise above the side of the ship, and the ship will sink.



WORD GLOSSARY

Acceleration

an increase in speed

Air resistance

a force which resists motion through air

Data

bits of information you have gathered about something you are investigating

Deceleration

a decrease in speed

Drag

a force which resists motion through a fluid, a fluid being anything that can flow e.g. liquids, gases

Evidence

information or measurements you use to help you come to a conclusion

Friction

a force which resists the motion of objects sliding over each other

Force

something which will affect either the movement or shape of an object

Gravity

attraction between physical objects, easily noticeable when one of the objects is massive, such as the Earth

Motion

a move or change in position

Variables

something which could change in value, such as time or temperature

Water resistance

a force which resists motion through water

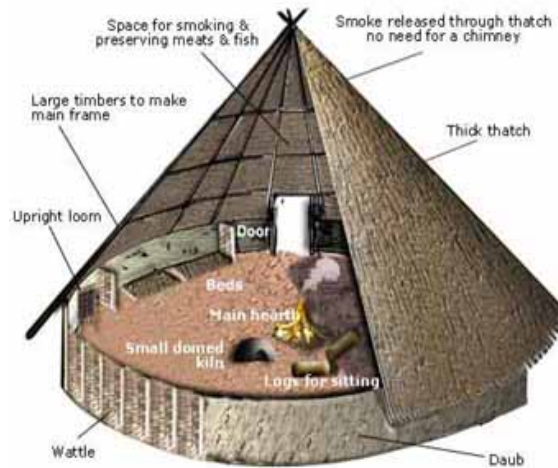
Weight

the force on an object due to gravity

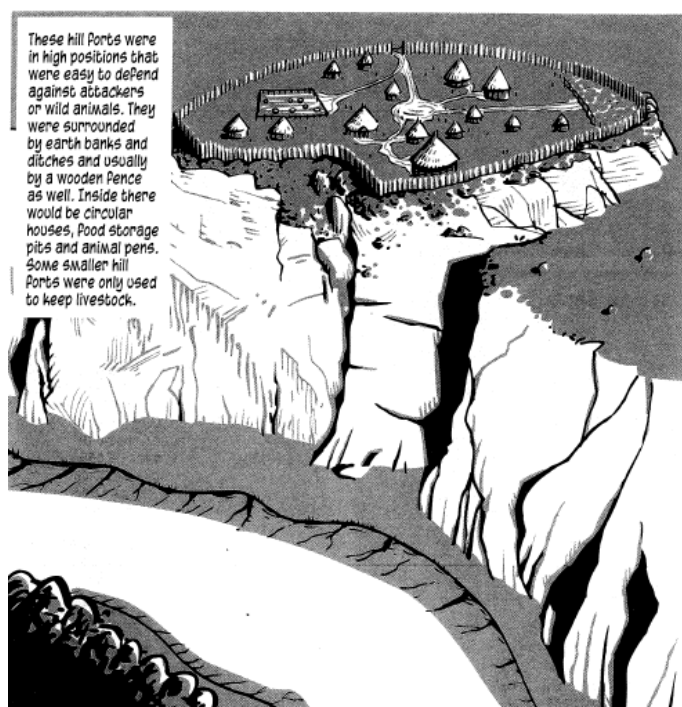
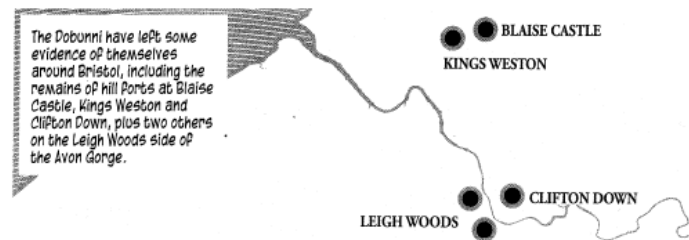
History 1: *Saxon Port*

The Dubonni tribe

Key Dates	
BC	Before Christ
AD	Anno Domini is Latin meaning "In the year of Our Lord"
Stone Age Period	8000BC-2500BC
Bronze Age Period	2500BC – 800BC
Iron Age Period	800BC – 43AD



Key Vocabulary	Definition
Dobunni	Were a tribe who occupied territories encompassing the modern counties of Gloucester, Avon, west Oxfordshire, north Somerset, along with parts of southern Hereford & Worcester and Warwickshire. Worlebury was on the southern border.
clan	Was made up of several fines. Each clan nominated a leader who was related by blood to the clan. Leaders had to be strong warriors. They had to be able to work out disagreements with other clans and conduct trade ad raids on neighbouring clans.
Tribe	Is made up of numerous clans. These clans belong to the tribe lead by a warrior king.
hillfort	A fort built on a hill, in particular an area on a hilltop enclosed by a system of defensive banks and ditches, as used by Iron Age peoples in NW Europe.
loom	An apparatus for making fabric by weaving yarn or thread.
Wattle Walls	Were made by weaving a fence of pliable hazel or willow sticks into an extremely strong circular structure.
daub	Is a material made from a mixture of clay, straw and animal dung. Daubed walls were great at keeping the heat in and the wind out. They were lime-washed to create a more pleasant appearance.
Roundhouse	Inside the hill forts, families lived in round house. These were simple one-roomed homes with a pointed thatches roof and walls made from wattle and daub.



The Dubonni were farmers and craftsmen scattered in small villages.

After 43 AD, the Romans invaded and conquered Britain. Most British tribes swore they would fight to the last but the Dubonni surrendered to the highly trained murderers of the Roman army.

From Brycgstowe to Bristol

Brycgstowe, Brigstow, Bricgstoc – It doesn't matter how it was spelt, to the Saxons it meant the same thing – 'Place by the bridge'.

The tendency for Bristolians to add the letter 'L' onto the end of words is no doubt the reason for today's spelling, but why did they build a bridge here?

The answer is not just because it was the lowest convenient crossing point of the River Avon, but also because it was an ideal trading location.

Situated six miles upstream from the mouth of the river where it meets the Severn meant that it had both good protection and good access.

The River Severn has the second (or third) highest tidal range in the world, and you don't have to witness the Severn Bore to see how fast the river can ebb and flow. This tidal range also affects the Avon, and for ships sailing up and down the river this was good news – or at least it was back then (see my post on the [Floating Harbour](#) for how things changed).



Early Bristol

Most towns are founded near the lowest bridgeable point on a river. Bristol is no exception. The Saxon settlement of Bricgstowe – the place of the bridge – grew up between the meeting place of the Rivers Frome and Avon. This illustration shows what the medieval bridge may have looked like.

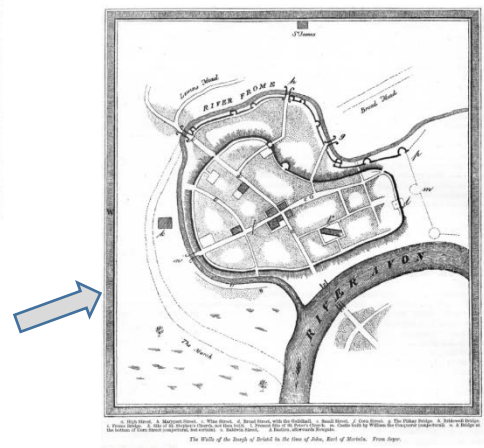


River Avon History

The 'human' history of the River Avon can be traced to at least the Roman era over 2000 years ago. The Romans famously built around the spa waters at Bath but they also created settlements at Sea Mills, Newton St Loe and Keynsham. This photo is of mosaic flooring at the Roman Villa, Keynsham.



Less is known about who came next but by the 11th century the settlement that became Bristol was established. The re-routing of the [River Frome](#) took place in late 13th century to create a new harbour area. This still exists, known today as St Augustine's Parade. The river was becoming the great highway of the area, stimulating a millennium of further settlement, trade and industry.



You wouldn't know it (because you can't see it), but there's also another river that flows through the city centre called the Frome. The map above shows its original course which took a loop around the hilly ground to the north of the Avon and then joined it just below the bridge.

It's had several diversions since but you can clearly see how the strip of land between the two rivers would have been a strategic and natural place for the Saxon town to be built.

We know very little about Bristol's Saxon beginnings, except that the original wooden bridge would have been built close to where today's Bristol Bridge is.





The Anglo-Saxons invented Bristol.



Early Settlement

The old city was established in the shape of the holy cross on higher ground above marshy land. This topography offered an ideal place to establish a settlement that could be defended from attack. The Avon Gorge and the river's tides also provided natural protection. Invaders would be hopelessly vulnerable and probably get stuck trying to reach the town by coming up the river.

Bristol started out as a village at some point during the Anglo-Saxon era. It would have been on the border between the two great kingdoms of Wessex and Mercia.



Much of the rest of the land around Bristol was marshy. You couldn't drive a horse and cart through that too easily.

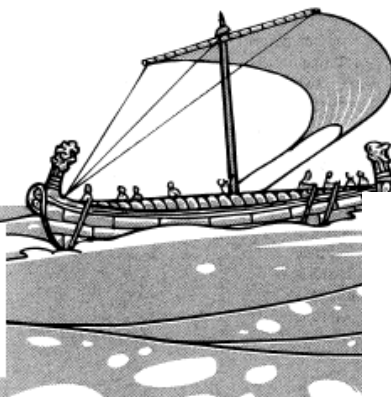
Even if the roads had been good, it's much easier to move heavy, bulky cargoes in a boat or ship than on a cart or horse's back.

It was also safer. If you were travelling by land with anything of any value, you could be robbed by bandits, or 'taxed' by some local warlord.



From Bristol, boats and ships could trade goods along the river Avon as far as Bath and beyond. Sea-going merchants could set off up the Avon Gorge and out into the Bristol Channel to trade with Wales and the North Somerset and Devon coasts. We know they were even trading with Viking-dominated Ireland well before 1000 AD.

We're not sure exactly what they were buying and selling, but it probably included wool, leather, animal hides, metal goods, fish, lead (from the Mendips) and wine. At this time, there were several vineyards in the south of England where grapes were grown for wine-making.



We don't know precisely when Bristol was founded. But we do know where – close to the site of the present-day Bristol Bridge. There has been a bridge here for over a thousand years, linking Wessex with Mercia and Somerset with Gloucestershire.

The first bridge was made of wood and crossed the Avon close to where it met the river Frome. A town of a few thousand people grew up near it. Here lived craftsmen, weavers, sailors, merchants, tradesmen and their families. There were churches, too.

The town was on some low hills, above the river and marshes, and because it was surrounded on three sides by water, it was easily defended from any attackers.

BRISTOL CASTLE

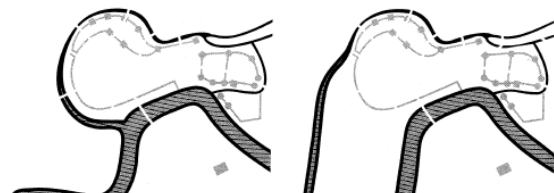
Following the Norman Conquest, Bristol Castle was built. The River Frome was diverted into what is now known as St Augustine's Reach to enlarge the harbour. The tidal river and the steep-sided Avon Gorge offered protection for shipping. The town grew in importance as trading links were established with Ireland and Wales. English wool and cloth was exported to Europe. The principal import was wine from France. Merchants also brought salt and iron from Spain and fish from



Bristol's coat of arm

By the mid-1200s, there was a sizeable town on both sides of the river and the port of Bristol was getting too busy to accommodate all the ships coming in and out.

It was decided to make the harbour bigger so that more ships, therefore more trade, therefore more money, could come in.

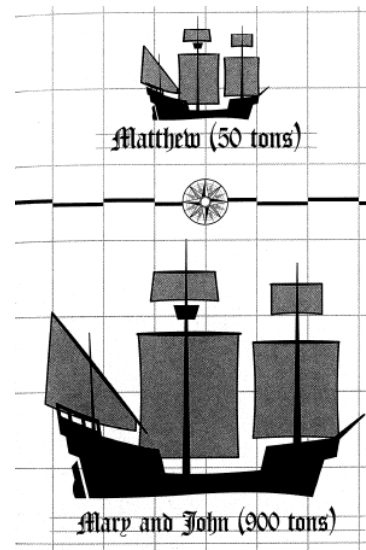


History 3: Cabot Sails to America

In the Middle Ages, Bristol was a world-leader in the technology of the fifteenth century, building state-of-the-art ships.

Carynges, for instance, built and owned a fleet that included the *Mary Carynges* (400 tons), the *Mary Redcliffe* (500 tons) and the 900-ton *Mary and John*. They're not big by modern standards (vessels of over 30,000 tons regularly come into Avonmouth now) but in the 1400s they were the equivalent of supertankers. Cabot's *Matthew*, for comparison, was just 50 tons.

By the late 1400s, Bristol was regularly trading with Spain, Portugal, France, Ireland and even Iceland. Ships left carrying cloth, animal hides (for making leather), lead mined from the Mendip Hills, tin and iron and more. They carried back wine from France, Spain and Portugal, cork from Portugal, wood and madder for dyeing cloth from France and Spain, fish, corn and linen from Ireland.



John Cabot (c.1450-1498)

Cabot was an Italian-born explorer who, in attempting to find a direct route to Asia, became the first early modern European to discover North America.

John Cabot (in Italian Giovanni Caboto) was probably born in Genoa but may have been from a Venetian family. In around 1490 he moved to England, settling in the port of Bristol. In May 1497, with the support of the English king Henry VII, Cabot sailed west from Bristol on the *Matthew* in the hope of finding a route to Asia. On 24 June, he sighted land and called it New-found-land. He believed it was Asia and claimed it for England.

He returned to England and began to plan a second expedition. In May 1498, he set out on a further voyage with a fleet of four or five ships, aiming to discover Japan. The fate of the expedition is uncertain; it is thought that Cabot eventually reached North America but never managed to make the return voyage across the Atlantic.



Sebastian Cabot, son of Italian explorer John Cabot ©

Medieval Exploration

It was in pursuit of fish – mainly cod – that Bristol seamen went first to Iceland and then to Newfoundland. It is also widely believed that Bristolians were in North America years before John Cabot's famous voyage from Bristol in 1497.



Illustration of Cabot sailing to America

History 4: *Slave trade*

A few centuries later, and thanks to the river, Bristol was again in a key position. The growing city began to monopolise trade with the Americas and with West Africa. By the early 18th century, the growing port was second only to London that was dominating trade with the far east. Making the Avon navigable in 1727 further boosted trade opportunities for Bath as well as Bristol.

"The Golden Age"

Bristol's business with the New World developed steadily as the old patterns of medieval trade changed. By the 18th century, Bristol was beginning to prosper on trade with West Africa, the West Indies and North America. This trading triangle was made possible by using the prevailing winds and ocean currents of the Atlantic.



The Slave Trade

Brassware produced in the Bristol area, as well as other goods, was traded in Africa for 'enslaved' people. They were taken across the Atlantic to work on the sugar, cotton and tobacco plantations of the New World. These commodities had a ready market in Europe. Find out more about the area's role in brass production by visiting [Saltford Brass Mill](#)

– the best preserved of a group of mills once operating along the Avon corridor.

Bristol merchants could grow rich on this trade if they were prepared to take the considerable risks involved. Many did, and the building boom that created most of Georgian Bristol took place. Bristol was uniquely placed to 'sew up' trade to the west. It became England's second port.



Not everyone condoned the slave trade that Bristol managed to hide so well for a further two centuries, however. The inhuman treatment of slaves shipped in appalling conditions had to end as campaigners worked towards abolition. This decline in trade coupled with the constraints of an awkward harbour meant that the port handled fewer ships as the 18th century wore on. Bristol's 'Golden Age' was over.

Leading figures in Bristol such as the Mayor, the merchants and other leading citizens owned Caribbean sugar plantations and were desperate for workers.

Some people went to work on the plantations as indentured* servants. They agreed to work for (usually) seven years. At the end of this time, they got money and/or land to start a new life.



* Indenture – a legal contract written out twice on a piece of paper which was then cut in half in a jagged line – like teeth, hence *indentured*. You can tell if the document is a forgery if the two halves don't fit back together again perfectly. Clever, eh?

In the 1400s, Bristol merchants occasionally bought or even kidnapped children in Iceland to bring back as 'servants'. And we've already seen how the Barbary pirates carried off English and Irish sailors and civilians to be slaves. Forcing or swindling working class Bristolians into becoming indentured labourers was just another chapter in this shameful story.

But for sheer cruelty, cynicism and the vast numbers involved, the enslavement of Africans by Bristol merchants and plantation owners was the worst of all.

Sugar had been cultivated in Asia, the Middle East and North Africa for hundreds of years. The Spanish and Portuguese grew it on their islands of Madeira and the Azores; Bristol merchants were buying it from there by the 1500s. But it was difficult to produce, and very expensive. Only the rich could afford the 'sweet salt'.

They used it to make jam, sweets and cakes. When tea and coffee became fashionable in the 1600s, it was used to sweeten them. People even put it in wine.

Everyone wanted sugar, and the profits from it could be huge.

Europeans now controlled much of America and the Caribbean. The Spanish and Portuguese had sugar cane plantations in Cuba and Brazil. By the mid-1600s, the English had plantations on the Caribbean islands of Barbados, Antigua, Nevis, Montserrat and St Kitts. When William Penn captured Jamaica from Spain, it became Britain's main sugar-growing colony.

Producing sugar required a lot of workers, more than could be supplied by prisoners and indentured servants. So the plantations started to use workers who were stronger, more resistant to tropical diseases and who didn't need paying – slaves from Africa.

Enslaving Africans wasn't an idea that the English, or Bristolians, suddenly came up with. The Spanish and Portuguese had been doing it since the late 1400s. The English simply got in on the act.

At first, the government decreed that only London merchants were allowed to carry African slaves, but lobbying by Bristol's Merchant Venturers got the trade opened to everyone in 1698.

By the early 1700s, dozens of ships left Bristol each year on the 'Triangular Trade'. They carried cloth, metal goods, glass beads, alcohol and weapons which were used to buy captive Africans from other Africans.

They then crossed the Atlantic from West Africa to the West Indies or the American colonies. This was the dreaded 'Middle Passage'.



These ships were not big. A typical slave ship was maybe twice the size of Cabot's *Matthew*. And yet hundreds of men, women and children were crammed into them. Often slavers would have extra platforms or whole decks fitted to pack in as many people as possible. These decks could be less than a metre apart, so the people were kept lying down as there wasn't enough room to kneel, let alone stand up.



The people were terrified, chained up, cramped, barely able to move. The heat and stink were unbearable. The journey would take several weeks, and if the weather was rough, everyone would be seasick.

Many died of exhaustion or disease. Merchants calculated that between 15% and 30% of their 'cargoes' would die in the Middle Passage.

They were brought up on deck once a day, washed down and fed. Sometimes they were made to dance for 'exercise'. Those who had died overnight were thrown overboard.

Some committed suicide by jumping over the side. Sometimes, they saw a chance to fight back. On one ship in 1728, they managed to break free and killed the captain and all the crew apart from the cabin boy. In 1752, some of the 400 slaves on the *Mariborough* managed to grab some weapons and killed most of the crew, allowing a few to live on condition that they sailed her back to Africa.

But most ships reached the West Indies where the survivors were sold to plantation owners. Husbands and wives were separated from one another, children taken from their parents and sold. All went to lives of hard, unrelenting work with no hope of ever gaining their freedom or of seeing their homeland or families again.

The ships then loaded the products of slave labour – usually sugar. They might also carry a by-product of sugar production, rum, a cheap and potent alcoholic drink which became especially popular with sailors.

If the ship was taking slaves to the American tobacco plantations, they would carry tobacco home. From the West Indies they might also bring back rice, indigo dye, pepper, ginger, coffee or cotton. Sometimes they would buy other things in Africa to bring home, such as gold or ivory.

The ship would return to Bristol having made three separate profits.

Slaves were never brought to Bristol in large numbers, though a handful did come. There was Scipio Africanus (we don't know his original name), a servant to an aristocrat who lived at a big house in Henbury. Scipio died aged about 18 and is buried in Henbury churchyard.



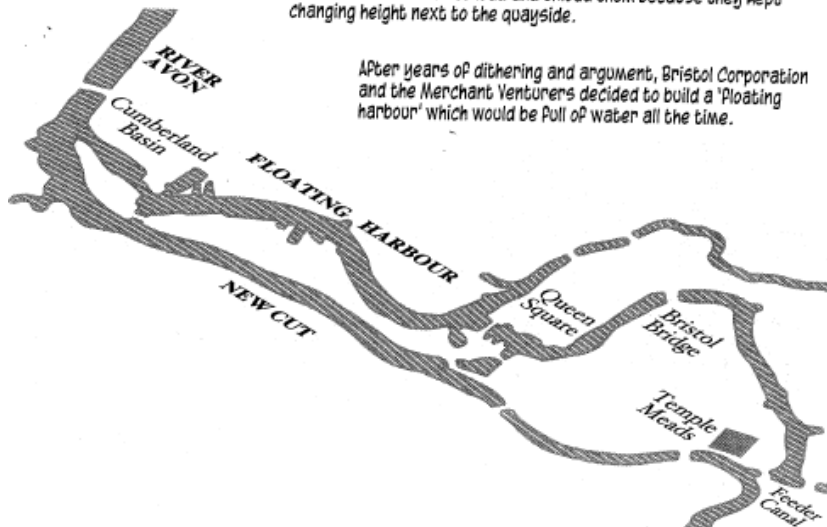
This 'Golden Age' wasn't to last however. Ships were becoming larger and other ports such as Liverpool were better equipped to trade with the west. The port of Bristol began to decline. Improvements to the docks throughout the 1800s propped up the fortunes of the port for a further century or so. But by the mid 1900s, the port of Avonmouth on the Severn Estuary was being developed as the region's main port. Bristol's ancient harbour is now a regenerated area offering a mixture of leisure, commercial and housing opportunities.



History 5: SS Great Britain

By the late 1700s, Bristol was no longer England's main port for trade with America and the Caribbean. It had been overtaken by Liverpool.

The problem was the harbour. Ships could only travel in and out of Bristol for a few hours each day during high tides. In the harbour itself, they only floated on water when the tide was in; when it flowed out, ships rested on the mud or gravel. It was bad for ships, and it made it harder to load and unload them because they kept changing height next to the quayside.



After years of dithering and argument, Bristol Corporation and the Merchant Venturers decided to build a 'floating harbour' which would be full of water all the time.

Bristol has been an important English seaport for more than a thousand years. The city is actually several miles from the sea and stands on the estuary of the River Avon. Bristol's harbour has one of the most variable tidal flows anywhere in the world and the water level can vary by more than 30 feet between tides. Ships that were moored there were beached at each low tide. Consequently they had to be of sturdy construction and the goods in their holds needed to be securely stowed. The problem was resolved in 1803 with the construction of the Floating Harbour. There's no absolute proof that the term 'Bristol fashion' originates with that geography but the circumstantial evidence seems very strongly in favour of it.

The ss Great Britain

This section explains a bit about the ss Great Britain, its history and its importance to Bristol.

The steam ship Great Britain is a unique survival from Victorian times. It was the world's first steam-powered passenger ship.

The ship was built in 1843 in the Great Western Dockyard, Bristol, by Isambard Kingdom Brunel and his colleagues.

When launched the ship was twice as heavy as any other ship, and lots of its design features have influenced the design of modern ships, making it a symbol of international passenger travel and communications.

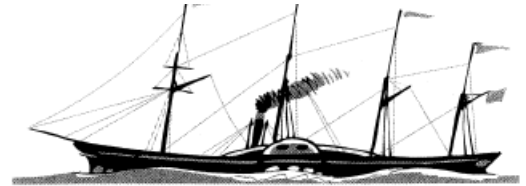
The ship was very large in comparison to others at the time and was 322ft in length and 50ft in width.

The ss Great Britain could carry 252 passengers and 130 crew.



The ss Great Britain was the first luxury passenger ship to cross the Atlantic to New York. Later in her life she transported emigrants to Australia.

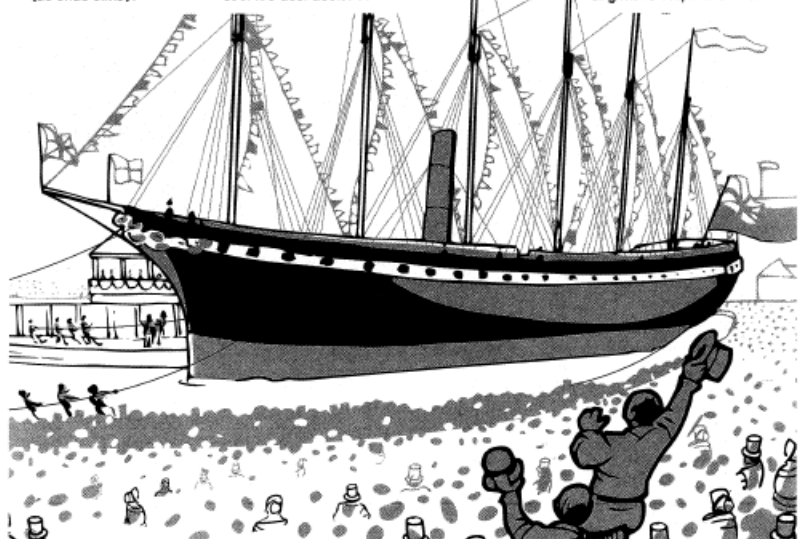
Brunel also wanted to link London with New York by fast steamship. For this, he designed the ss Great Western. Built at William Patterson's shipyard in Bristol, she was the biggest steamship the world had yet seen, and the first ship designed to cross the Atlantic Ocean by steam power alone.



He followed this success with the ss Great Britain, the first ocean-going ship with an iron hull AND the first ocean-going ship to be powered by a screw propeller AND the biggest steamship ever built (at that time).

The Great Britain led a long and useful life before ending up as an empty shell on the Falkland Islands where she was used to store coal and wool. In 1970, she was brought back to Bristol to be restored. She is now an award-winning museum and one of Britain's leading tourist attractions.

The ss Great Britain was a triumph for Brunel, but a disaster for Bristol. She was so big that when she was due to leave in December 1844 the Cumberland Basin locks had to be widened. After ss Great Britain, Brunel never attempted to build any more ships in Bristol.

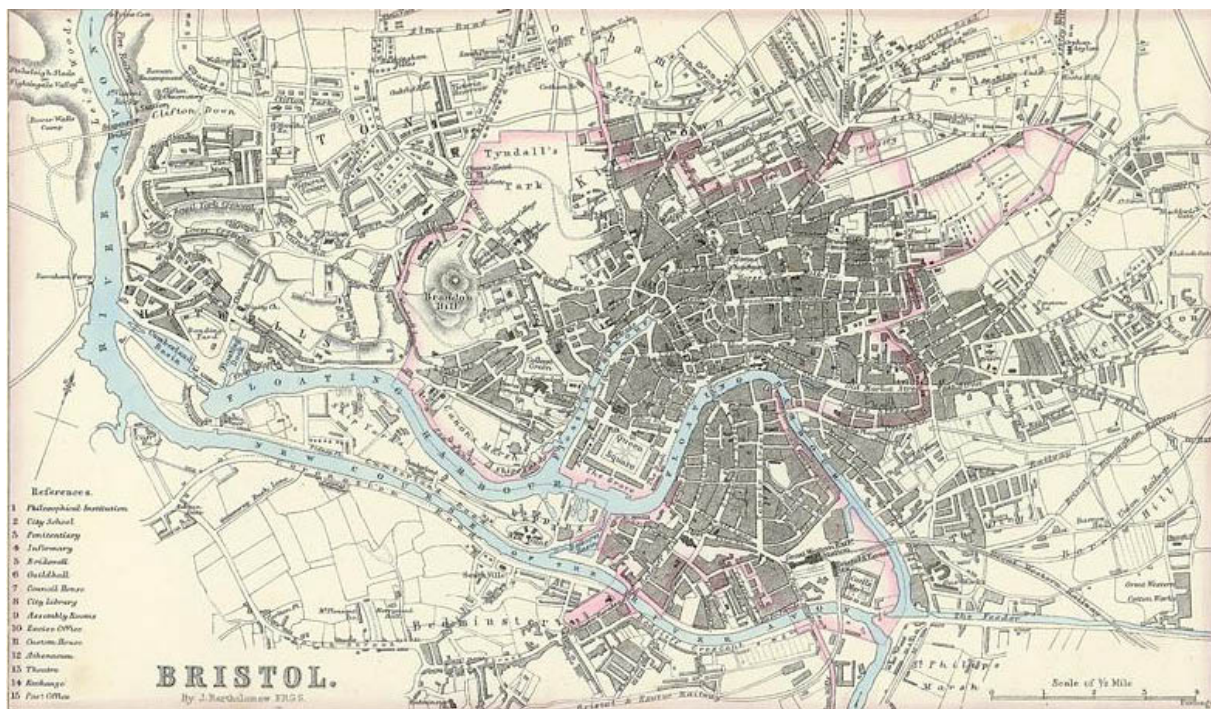


History 6: *Victorian trade*

Bristol lies on one of the UK's lesser [coalfields](#), and from the 17th century [collieries](#) opened in Bristol, and what is now North Somerset and South Gloucestershire. Though these prompted the construction of the [Somerset Coal Canal](#), and the formation of the [Bristol Miners' Association](#), it was difficult to make mining profitable, and the mines closed after nationalisation.

During the Middle Ages Bristol developed a trade network with close neighbours Wales and Ireland, as well as many countries on the Continent, trading goods including wine, fish, wool and crops. These trading links expanded further over the coming years and by the sixteenth century Bristol was home to a thriving transatlantic trade, with the slave trade bringing incredible wealth and prosperity to the area. Not everyone in the city approved of Bristol's role in the slave trade and it was the first place outside London to establish a committee for the abolition of slavery in 1823, significantly (and unusually for the time) the committee had both male and female members. The committee's first petition for the abolition of slavery raised over 800 signatures.

Although Bristol was not as important a manufacturing city as Manchester, Sheffield or Leeds, the brass, copper, chemical, glass, soap, and paper industries that had emerged during the late eighteenth and nineteenth centuries ensured its position as an important centre of commercial activity. Similarly, the tobacco firm W.D. & H.O. Wills, which was founded in Bristol in 1786, achieved incredible financial success throughout the nineteenth century. They also manufactured one of the most recognisable and popular products in the tobacco market, the Woodbine cigarette. The service industry sectors became increasingly important as the nineteenth century progressed and the population of Bristol expanded from 68,944 in 1801, to 159,945 in 1851, and 323,698 in 1901, with the increasingly affluent and numerous middle classes moving to the leafy suburbs such as Clifton.



Manufactures

Bristol has numerous glassworks and potteries, and has long been famous for its glass and pottery ware. There are also brass, copper, zinc, lead, iron, and tin works; chain, cable, and anchor factories; sugar refineries; locomotive, and other steam engine works; distilleries, breweries, malt-houses, chemical works; soda, soap, leather, ropes, sails, shoes, saddlery, patent shot, spelter, floor cloth, pins, hats, tobacco and snuff, &c., are also extensively manufactured; and a large cotton factory, employing several hundred hands, has recently been erected. On the banks of the Avon are several dock yards, in which shipbuilding, to a very considerable extent, both in wood and iron, is carried on, Bristol having been for centuries celebrated for this art, and having built some of the finest frigates used in the late wars, and steamers used in the Royal Mail service.

Commerce

The commerce of Bristol is principally with the West Indies, the Mauritius, Havana, Venezuela, the East Indies, China, Canada, and the United States, carried on in vessels varying from 500 to above 1000 tons. There is also an extensive fruit trade with the Mediterranean and the Azores, and considerable commercial intercourse with Russia, South America, France, and the African coast. Bristol formerly possessed a large trade with Spain in wools, but this has latterly fallen into decay. With America, outwards, the trade is principally in emigration, iron, or coals for ballast; this trade is rapidly increasing, as are also the imports from the U. States and Canada, consisting of cotton, timber, flour, provisions, tobacco, and turpentine. The tobacco trade of Bristol is considerable, and the manufacture of snuff extensive. The quantity of leaf tobacco entered in 1843, amounted to 1,326,605 pounds; of manufactured tobacco and cigars, 790 pounds. From the period of the establishment of the floating harbour up to 1848, owing to heavy dues being charged by the dock company, the trade of Bristol did not increase correspondingly with other ports, but in that year the enormous dues were reduced, and the trade has been improving ever since. On January 1, 1846, the number of sailing vessels registered at the port of Bristol was 272, tonnage 38,143; steam vessels, 26, tonnage 3905.

Vessels inwards, exclusive of coasters.			Vessels outwards to Foreign ports.		
Vessels.	Tonn.	Custom Duties.	Vessels.	Tonn.	Exports.
1847....372....	546,753....	£0,911,314	1847....122....	28 214....	£161,559
1848....451....	559,292....	1,004,789	1848....142....	35,940....	167,481
1849....541....	641,351....	1,036,732	1849....157....	34,674....	147,044
1850....616....	643,217....	1,042,319	1850....177....	47,793....	221,964

Bristol also possesses a very considerable Irish and coasting trade, which is also increasing, employing, in 1847, 546,753 tons of shipping, and in 1850, 643,217 tons. The inland commerce of Bristol is much promoted by the Great Western, the Birmingham and Bristol, and other railways, and by the extensive internal water communication afforded by the Severn, the Wye, the Usk, the Avon, the Parret, the Tone, and the numerous canals connected with them.

History 7: *Avonmouth and the Royal Portbury*

At the end of the 19th century, the port facilities were migrating downstream to [Avonmouth](#) and new industrial complexes were founded there.

Avonmouth

The mouth of the Avon was recorded as *Afenemupan* in the [Anglo-Saxon Chronicle](#) under the years 915 or 918 and 1052, but it is clear from the context that the name does not refer to a settlement. The area was historically part of the [chapelry](#) of Shirehampton, a detached part of the [ancient parish](#) of [Westbury-on-Trym](#) in [Gloucestershire](#). Early 19th century maps show the area as farmland. At that time the deep water channel of the Avon ran through the present-day site of Avonmouth Docks and separated the mainland from a small island named Dumball Island. [Bewys Cross](#), a stone monument possibly dating from the 15th century, was located on the bank of the Severn close to the old mouth of the Avon.

The first development at Avonmouth was a landing stage built in 1860 by [Bristol Corporation](#) at "Avon's Mouth". The first record of the modern name was in the title of the Port and Channel Docks (Avonmouth Dock) Bill debated in Parliament in early 1863. When the [Bristol Port Railway and Pier](#) was built in 1865 the terminus station was named [Avonmouth](#). A hotel, the Avonmouth Hotel, was opened at the same time. A small new village was built to serve the new docks, which were finally opened in 1877. Also in 1877, the BPRP line was connected to the main railway network by the [Clifton Extension Railway](#), and a new railway station named [Avonmouth Dock](#) was opened by the docks.

The new Avonmouth Dock and the original nucleus of the settlement were transferred from Gloucestershire to the City of Bristol in 1894, and the rest of the expanding settlement became part of the City in 1904.

In 1902 work began on the Royal Edward Dock, a major expansion of the docks, completed in 1908. Land required for the expansion necessitated the closure of the original station, and from 1902 all trains terminated at Avonmouth Dock station (renamed plain "Avonmouth" in 1966). However, the Avonmouth Hotel adjacent to the original station remained open. It provided accommodation for many Europeans emigrating to the Americas via Avonmouth, and during the [First World War](#) it housed the [Women's Army Auxiliary Corps](#). It was finally demolished in 1926 when the Royal Edward Dock was expanded.

Between 1919 and 1926 the [Portway](#) was built, providing more direct road access to Avonmouth from Bristol. Shirehampton had become a separate parish in 1844, and a Church of England chapel was established in the new settlement of Avonmouth late in the nineteenth century. Avonmouth became a separate parish in 1917. Avonmouth's first church, completed in 1934, was bombed in [World War II](#) by bombers of the [Luftwaffe](#) in one of latter of the six major raids which formed the [Bristol Blitz](#), in 1941.

In December 1971 the [M5 motorway](#) was opened to Avonmouth, and extended south into Somerset when the [Avonmouth Bridge](#) was opened in May 1974.



The Royal Portbury Dock

The **Royal Portbury Dock** is part of them [Port of Bristol](#), in [England](#). It is situated near the village of [Portbury](#) on the southern side of the mouth of the [Avon](#), where the river joins the [Severn](#) estuary — the [Avonmouth Docks](#) are on the opposite side of the Avon, within [Avonmouth](#). The deepwater dock was constructed between 1972 and 1977, and is now a major port for the import of [motor vehicles](#) into the [UK](#). The [M5 motorway](#) runs nearby, and the huge car storage compounds around the dock are visible from the [Avonmouth Bridge](#). A waste industrial area west of the port is being developed as the [Portbury Ashlands](#) Nature Reserve.

The Royal Portbury Dock has the largest entrance lock into any UK port, accommodating vessels up to 41m (135ft) beam, 290m (951ft) length and 14.5m (48ft) draft.