

Tram Timeline Online

While we cannot deliver our education sessions in person at the Museum, we can still support your classroom teaching.

Our Tram Timeline session supports topics about Transport and Journeys. This online version highlights the key points from the session and the historical context of tramcars and tramways. There are opportunities to explore the future of transport and eco-friendly possibilities. Images from the Teachers' Pack are useful resources for discussion. The Teachers' Pack also has classroom activities to consolidate learning.

Pupils should be given plenty of opportunities to discuss and reflect, using evidence from the resources and their discussions to support their opinions and conclusions. Using a question grid such as the one below for each topic can help the children's thinking and research.

| | Is? | Did? | Was? | Could? | If? |
|-------|-----|------|------|--------|-----|
| What | | | | | |
| Where | | | | | |
| Who | | | | | |
| Why | | | | | |
| How | | | | | |

How do they travel?

How do you travel to school? To the shops? On holiday?

How would you travelled from place to place 200 years ago? Do you think people travelled very much? Why?

Most people would walk everywhere, only rich people would be able to afford their own horses, and usually only farmers would own a horse and cart. Generally, people didn't travel very far and if they did, they would pay to travel by horse and carriage.

What would a journey by horse and carriage be like?

Roads were mostly compacted dirt and not tarmacked like modern roads. In winter the road would be very muddy and hard work for the horses pulling the carriage. The mud would be mixed with horse manure and be very smelly. *You can ask the children to pretend to be plodding through mud!* In summer the mud and manure would become dry, hard and have potholes so be very bumpy. There would be a lot of dry dust that would stick to the sweaty passengers who would arrive hot and dirty.

Take a vote on when the children would have preferred to have travelled. Ask them to think about comfort, smells (animal and human) and the clothes that would have been worn.

Throughout the 1800s there was a major change in the way people lived and worked. The Industrial Revolution brought people into the quickly developing towns and cities where there was work in the newly built factories. Horse drawn omnibuses carried people from place to place locally, although the main mode of transport for poorer people was still walking.

Some towns and cities had roads made from stone setts. They were an improvement because the roads didn't get muddy in wet weather, but it didn't solve the problem of what the horses left behind, which was...?

... poo. This still stuck to people's clothing when wet, and their skin when dry. People called Street Sweepers made a living cleaning it up, removing tons and tons every day.

The setts were still bumpy and uncomfortable for anyone travelling in a wheeled vehicle. The engineers of the time set about thinking how they could make travel a more comfortable experience. At first smooth stones were put down, the width of a carts wheels apart so the wheels ran on a smoother surface. This helped, but there was a way to make a really smooth ride.

Can the children guess what that was?

By the 1850s railways were carrying goods and sometimes passengers over long distances and the idea of using rails to provide comfortable public transport in the towns and cities became the way forward. They are smooth so that any vehicle travelling on them will have a comfortable ride.

Trams

The tram was brought to this country in 1860 by an American called George Francis Train. The first trams ran in Birkenhead in Cheshire in the north west of England.

The first trams were horse drawn (pulled) and were very like the omnibuses, usually able to carry about 15 people. The rails made it much easier for the horses.

How many horses did you need?

Most early trams were single decked and pulled by one horse.

Ask the children to imagine they are a horse working for a tram company. What do they think they need to keep healthy and strong to pull the trams?

A cosy stable to sleep and rest in
Plenty of food and water

Tell them that they will have to get up very early to start work and once they have had their breakfast they will be groomed and then put into harness.

Which end of the tram are they going to pull from?

Because the tram runs on rails, it can't turn around at the end of the track and has to be driven from either end. At the end of the line the horse was un-hitched and moved from the front to the back. The back becomes the front and the horse pulls the tram back from where it has come.

Should the horse be made to work all day?

The horse will only work for **3 hours a day** and in that time it will cover about 15 miles.

Should the driver work all day?

The driver would work a 12 hour shift – a long day but they were quite well paid and it was considered a very good job.

How many horses would be needed to keep the service running?

Up to 11 for each tram to allow for change overs and injuries. That's a lot of horses and it starts to create a problem.

How much do you think a horse cost 150 years ago?

Between £20-50 per horse, which was a lot of money. For comparison, a servant at that time would only earn £6 in a whole year. They would have lodging and uniforms paid for.)

This amount of money was a big problem! 11 horses at £30 each (for every tram) adds up to £330 for just one tram route and in some of the big cities there were lots of routes. There were other costs that needed to be taken into account as well, such as wages for the drivers, blacksmiths and stable boys, fodder and stabling.

And all the time engineers were working hard to develop new, cheaper and more efficient ways of moving people. A new source of power was being developed for trams – one that was already used successfully elsewhere.

Steam

Ask the children if they know how the first railway engines were powered. It was decided that perhaps steam could be used to power trams.

The steam engine pulled a large trailer, which looked very like a double decker bus, that the passengers rode in.

People were afraid of steam – especially when it was being brought into the towns and cities. It was noisy, created a lot of smoke and frightened the horses. Laws were passed to make sure that the working parts of the engine and its wheels were covered, and they were only allowed to travel at walking pace with a man with a red flag in front warning people.

They could carry a lot more people and were better on hills. However, the engines were heavy and dirty, rather prone to accidents and the costs were not dramatically less than the horse trams.

Only a few tramways adopted the steam tram and even then they didn't keep them for long as something better was used to power the trams.

Can anyone guess what that was?

Electricity

Scientists experimenting with electricity were discovering many uses for it. They soon found that really powerful electric motors could be made which could be used to move the trams. The first electric trams were introduced in Blackpool in 1885.

How did they get the electricity into the trams? Could you plug them into the mains electricity supply? The cable would not be long enough, and the plug would soon be pulled out. Batteries were too weak and mains supply was not strong enough. Different ways of getting the power to the trams were used, but the most common was by using an overhead wire called a **Tramline** to carry the electricity. Each tram had a pole, called a **Trolley Pole** which connected to the tramline with a small wheel allowing the power to flow through the trolley pole into the tram, to the **controllers**, which work like the gears on a car, and then to the electric motor which turns the wheels.

Just like the horse trams, the driver changed ends at the end of the line and moved the trolley pole to the other end of the tram as it is always dragged behind the tram.

The use of electricity allowed tram networks and tramcars to develop and become a really efficient and cheap method of public transport. The trams were much bigger because the motors were so powerful, allowing them to carry more passengers. Some were able to carry 70 passengers.

Safety

Would it be easy to stop in an emergency?

Tramcars have brakes which stop the tram but also underneath every tramcar is a special piece of equipment called the lifeguard. If the tramcar hits anything, the wooden bars on the front of the tram pivot upwards and a platform drops to the ground. This scoops up the person and stops them from getting injured by the wheels or bashed by the bits under the tram. When the tram has stopped, they can be rescued and taken to hospital. They might have bumps and bruises and even broken bones but they are alive!

Crew

Each tram had a driver and conductor. The driver didn't have much to do with the passengers as he was focussed on the road ahead and getting the passengers safely to their destination.

The conductor collected fares and gave out tickets. Each type of ticket was a different colour, for example; an adult ticket would be red whilst a child's would be yellow. The conductor also let the driver know when it was safe for them to move off, either with a whistle or a bell and the driver would respond by pressing a gong with their foot.

Rules

There were rules that had to be followed on the trams. 'No Smoking' signs were displayed to warn passengers. This had nothing to do with health but to prevent the tram from possibly catching fire due to discarded cigarettes. Anyone smoking would be asked to get off the tram.

No animals were allowed, and again anyone trying to carry a dog (or any other animal) with them would be told to leave the tram.

The third rule, which was strictly enforced, was 'No Spitting' and trams had a sign saying that people spitting would be fined 40 shillings (£2 in today's money). This was a lot of money to be fined.

Ask if the children know why spitting was so serious. Spitting spreads germs and in the 1920s there were not the drugs to cure the illnesses that could be spread by this.

Decline of trams

What happened to the trams? Lots and lots of lovely old trams were sent to the scrap yard. Most were burnt.

Why do you think they were getting rid of the trams? The trams were not got rid of all at once – they went over quite a long time. Some trams just got old and couldn't be repaired any more. In WW2 lots of cities were bombed and tracks were damaged, instead of repairing them they were dug up and the trams replaced with buses. Buses were more flexible – they didn't need tracks and wires, could turn round and go almost anywhere. More and more people could afford a car so they could drive from door to door.

The Future

Trams are returning to our towns and cities. Blackpool, Sheffield, Manchester, Croydon, Nottingham and most recently Edinburgh all have modern tram systems. Modern trams use computers, are made of modern materials and are more like trains.

They are more environmentally friendly, use cheaper electricity, are quieter, quicker and cleaner than buses. They carry many more passengers as well. You never know – a tramway might open near you – you will just have to wait and see.