

Eye Spy Transport Engineers - Activity Guide

Purpose: To spot and photograph all the amazing engineering objects / structures linked to transport along this part of the canal.

Time: Approximately 60 minutes

Distance: Approximately 3/4 mile

Location: From High Peak Junction to Aqueduct Cottage and back, walking up one side of the canal and returning on the other.

Resources: Spotters guide and map for lead teacher / adults, camera or tablets

Teaching notes:

There is so much to see and discuss along this short section of canal. The time you spend at each point of interest will be a balance between your pupils' observations, questions and interest, how quickly they can walk between stops and the overall time you have to complete the activity.

Before you start your walk ask your class to explain what transport and engineer means.

Transport: a way of transporting goods or people from one place to another. For example: roads, railways, canals, rivers, footpaths.

Engineer: a person who designs, builds, or maintains engines, machines, or **structures**.

Ask your class, if they are going on an 'eye spy' Transport Engineers walk, what kind of things should they be looking out for? - Anything that is linked to transport and has been designed and built by someone in the past, e.g. bridges, railways, canal, aqueducts (where the canal crosses something).

To help you guide your class there is a 'spotters guide' which shows various photos, either historic or current, of what your children might see, along with information about the different places. This guide can be used in conjunction with the map of the site, with most locations marked on with a number.

Start your walk at the High Peak Junction Workshops (1) walk up to the old wharf shed (8), with its crane base and loading gauge, cross over the Aqueduct (10) where Cromford Canal crosses the River Derwent, then cross the canal using the old swing bridge (11) to bring you to Aqueduct Cottage (12). Take a small diversion down the old 'Lea Wood arm' of the canal, after 5 minutes you can stand on a footbridge going over the railway and look into a railway tunnel, from here you can also see the railway as it crosses the River Derwent. Return to Aqueduct Cottage (12) and walk down the canal back towards High Peak Junction, where you will pass Leawood Pumphouse (13). Back at High Peak Junction use another 'swing bridge' to cross the canal to get back to where you started (1).

At each place stop the class and encourage the children to try to work out what they are looking at, what is it, why is it there, how does it work, what would it be like if it wasn't there etc.

Children can record their findings digitally with cameras or tablets. Back at school these photos can be printed off to make a 'Transport Engineers' display.

Eye Spy - Spotters Guide



(Location 8) Wharf Shed, base of a crane and loading gauge

The Wharf Shed is where goods were stored and transported from Cromford Canal and the Cromford and High Peak Railway.

This is the base of a crane that would lift heavy loads off the canal boats and onto the railway carriages to be carried along the Cromford and High Peak Railway.

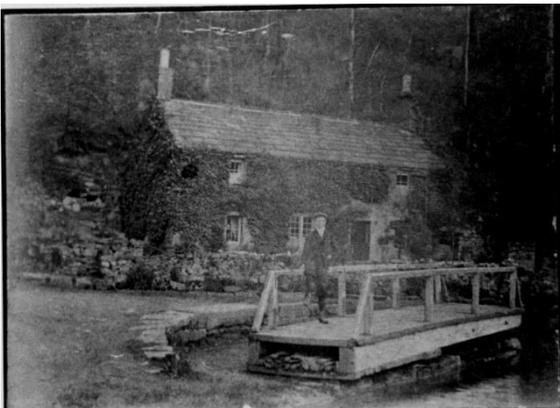
Hanging above the path near the Wharf Shed building is a 'loading gauge' which checked the height of the wagons to ensure they would pass under bridges and tunnels.



(Location 10) Derwent Aqueduct – Cromford Canal crossing the River Derwent

The Aqueduct is a three-span masonry aqueduct first constructed in the early 1790s. The aqueduct carries the Cromford Canal over the River Derwent. By September 1793 serious cracks had appeared. William Jessop, the engineer who had supervised the building work, accepted liability and offered to re-build it at his own expense. He claimed the fault lay with the Crich lime he had used as mortar which did not set. It is one of the major engineering feats on the Cromford Canal. The total length of the construction is 200 yards.

Photo taken 1902: <https://www.aqueduct-cottage.com/blog/gallery/>



(Location 11) Swing bridge

What is special about this type of bridge?

They were built to enable pedestrians to cross from one side of the canal to another. However, when canal boats need to pass they can be 'swung' out of the way.



Photo taken 1930: <https://www.aqueduct-cottage.com/blog/gallery/>



(Location 12) 'Aqueduct Cottage'

Aqueduct Cottage was originally built as a lengthman's and lock-keeper's accommodation in 1802 by Peter Nightingale (Florence's great great uncle). The people who lived in it looked after the Leawood Arm, a branch of canal that went to his factories and lead works at Lea Bridge and Lea Wharf.



(Location 14) Leawood Arm - an old branch canal

It was a condition of the construction of the Leawood Arm that the water level should be maintained at least 12" above that of the Cromford Canal to ensure that no water was taken from the Cromford Canal to supply the new Leawood Arm.

To achieve this, it was necessary to have a stop-lock at the entrance to the arm. The operation of that lock would need to be supervised by a lock-keeper and this is most likely the reason for the construction of Aqueduct Cottage.



(Location 15) Footbridge over the railway and railway tunnel

Walk for 5 minutes along the old branch canal until you get to this footbridge bridge.

Why is there a railway tunnel?

Trains cannot go up steep hills, so they need to go around them or through them.

Why did they not go around this hill?

The canal is in the way and it would be a very long way around in the other direction.



(Location 15) Railway bridge over the River Derwent

This bridge can be seen from the footbridge over the railway.

What is the bridge made from? Why is this chosen? What shapes can they see in the bridge structure?

Can they see any debris (grass etc) on the bridge, if so, how did it get there? – In 2020 the River Derwent flooded, and the water got so high it actually went over the railway bridge and trains had to be stopped until the water had gone down and it was safe to cross.



(Location 13) Leawood Pumphouse

The pumphouse was built in 1849 to top up the canal with water from the River Derwent following a water shortage in 1844.

The restored steam engine is capable of lifting 4 tons of water each minute, up to a height of 30 feet.

The pump is open to the public for special 'in steam' days. See www.derbyshire.gov.uk for details.

Map of the Site

Items shown in blue indicate significant and original features of Cromford Canal and Cromford and High Peak Railway



Key to Historical Features

- 1 Workshops
- 2 Water Tower
- 3 Wheel Pit
- 4 A6 road bridge
- 5 Catchpit
- 6 Lengthsman's Cabin
- 7 Weighbridge Office
- 8 Wharf Shed
- 9 Winding Hole
- 10 Aqueduct
- 11 Swingbridge
- 12 Aqueduct Cottage
- 13 Leawood Pump
- 14 Leawood arm old branch canal
- 15 View of Railway over River Derwent