

A Feat of Engineering Activity Plan

Learning Objectives

- Understand the challenges faced in building a canal across hilly terrain.
- Discover which engineering solutions were used to overcome the terrain and why the canal is considered such a feat of engineering.
- Find out about the people who were involved in the building of the aqueduct and their special skills.
- Understand how design and engineering can offer technical and creative solutions to problems.
- Develop technical and creative thinking and problem solving skills.

Resources

- Surveyor's Task PowerPoint
- Xplore! film 'The 11 Mile Journey'
- Pontcysyllte Aqueduct Animation, produced by the Royal Commission on the Ancient and Historic Monuments in Wales
- Role-play: Who built the Canal? Teachers' Guidance Notes and Role-play cards
- Build a canal activities, Canal & River Trust Explorers
- Xplore! film 'Why do pulleys make lifting loads easier?'
- Xplore! film 'Why are arched bridges so strong?'

Xplore! Science Discovery Centre in Wrexham have worked with us to develop some of the films above. Their workshop the '11 Mile Journey' is suitable for Key Stage 2 and Key Stage 3 learners and focuses on the 11 mile Pontcysyllte Aqueduct and Canal World Heritage Site and the engineering challenges faced by the canal builders. The forces enabling the aqueduct's arches to carry such large loads are unravelled as volunteers help build a model aqueduct. Learners then work in small teams to build their own canal system, complete with an aqueduct. Their canals are then tested to ensure they can effectively hold water. For more information, please visit www.xplorescience.co.uk or contact the bookings team on 01978 293400 or bookings@xplorescience.co.uk

Activities

1. Tackle the Surveyor's Task Powerpoint to get an understanding of the terrain that the canal was built across.
2. Watch the '11 Mile Journey' to find out about the challenges the canal builders had to overcome and get ideas for building your own model canal system.
3. Watch the Pontcysyllte Aqueduct animation to visualise how the aqueduct was built.
4. Deliver the role-play 'Who built the Canal?' to discover the range of people who were involved in the design of this engineering feat.
5. Watch 'Why do pulleys make lifting loads easier?' to find out why pulleys were used to lift heavy materials to build the aqueduct and to load cargoes onto canal boats.
6. Watch: 'Why are arched bridges so strong?' to learn about building arch bridges.
7. Try out activities from the Canal & River Trust Explorers [Canal Building Bundle](#).





A Feat of Engineering Activity Plan Continued

Suggestions

We hope the films will trigger your own investigations and experiments.

A visit to Pontcysyllte Aqueduct and Canal would set the scene for and complement these activities. The Visitor Centre at Trevor Basin is a good place to start. It is open from 10am-4pm and school visits can be pre-booked. Contact: 01978 822912 TrevorVisitor.Centre@canalrivertrust.org.uk

Why not visit Xplore Science Discovery Centre or book them to come to school?

Plenary

The building of the Llangollen Canal with its magnificent aqueducts, tunnels, tall embankments and deep cuttings was an incredible feat of engineering, in an era without the benefits of modern technology.

Pontcysyllte Aqueduct and Canal was made a World Heritage Site in 2005 in recognition of its engineering brilliance.

KS2 Curriculum Links

England	Wales
<ul style="list-style-type: none"> History Geography English Computing STEM 	<ul style="list-style-type: none"> Humanities Literacy and Communication Digital Competence Science and Technology

Useful Websites/Extra Resources

- [Smallpeice Trust Aqueduct Challenge](#)
- [Engineering@Home - Challenge 13: The Aqueduct Challenge](#)
- [Building Bridges](#)
- [Fact File: Pontcysyllte Aqueduct and Trevor Basin](#)

