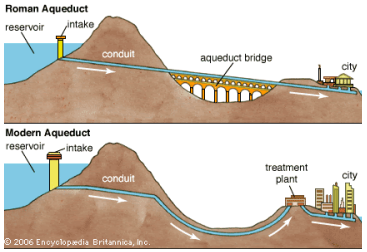
Our Lady and St Edward's Knowledge Organiser	Year 4 - Design and technology	Autumn	Construction: Roman Aqueduct

Outcome: Study building techniques that were used by the Romans. Design and construct a Roman Aqueduct.

Key Knowledge and Concepts



Around **2,000 years** ago, the city of Rome was at the centre of a huge empire that stretched from Scotland to Syria. Aqueducts are majestic and graceful ancient structures that transport water long distances. Roman aqueduct systems were built over a period of about 500 years, from 312 BCE to 226 CE. Aqueducts supply clean water for use in private homes, public baths and fountains, and crop irrigation. They were made from a series of pipes, tunnels, canals, and bridges.

Famous Aqueducts

Pont du Gard Aqueduct

Crosses the Gard River, France. A UNESCO World Heritage Site. It was originally part of a 50 km (31 miles) canal supplying fresh water to the Roman city of Nimes.

The Aqueduct of Segovia was built around 50AD, is one of the best preserved monuments left by the Romans in Spain**.** Carries water 16km (10 miles) from the Frio River to Segovia to this day. 165 arches more than 9 metres (30 feet) high.

Key Vocabulary

Aqueduct: A pipeline specifically built to transport water.
Engineer: A person who designs, builds, or maintains engines, machines, or structures.
Roman Empire: An empire is a political system in which a group of people are ruled by a single individual, an emperor or empress.
Durable: Able to withstand wear, pressure, or damage; hard-wearing.
Prototype: A first version or model of a product from which other forms are developed.
Design Criteria: Precise goals that a project must achieve in order to be successful.
Design: A plan or drawing produced to show the look and function of a building or other object before it is made.
Building Techniques: Procedures and methods that are used during the building process.
Evaluate: Decide if your design or structure meets its purpose.

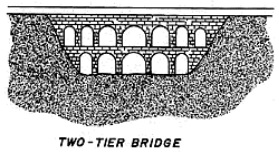
Key Information about Roman Aqueducts

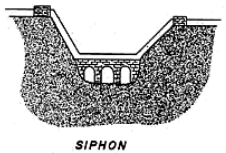
Design, Make, Evaluate…

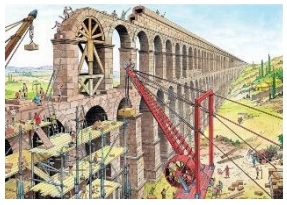
- How did the Roman Empire supply its urban citizens with water?
- How is today's water system similar or different from that of the Romans?
- Which materials would be most suitable for building?
- What are your design criteria?
- Can you plan, design or model your aqueduct?
- What are some major constraints for this project?

Health and Safety

All children should to be supervised when using equipment







What I should already know:

- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures

By the end of this unit, I will know:

- Design purposeful, functional, appealing products for themselves and other users based on design criteria.
- Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
- Evaluate their ideas and products against design criteria.
- Build structures, exploring how they can be made stronger, stiffer and more stable