

CHILDREN'S UNIVERSITY SCIENCE CLUB RESOURCES

Aimed at teachers or other adults wanting to introduce a science or STEM club to children, PSTT has created freely accessible resource packs that each cover a series of 8 sessions for an extra-curricular science or STEM club.

The resource packs are available to download from the PSTT website. **Engineering Our World** is based around a famous scientist, engineer or artist, each session includes an activity to challenge the children and a fact sheet to take home so the children can share their learning with their friends and families. We also have activity packs for **Earth Explorers** and **Challenge Chasers**.

All activities are validated by the Children's University and as such count towards accredited learning for any children taking part.

CREATED BY KATE REDHEAD





KEY FACTS

Born September 23, 1843
New York, United States

Died February 28, 1903 (aged 59)
New Jersey, United States

Nationality American

EMILY ROEBLING

What is she most famous for?
She is most famous for her contribution to the construction of the Brooklyn Bridge in New York.

Why is this important?

- She was the first woman field engineer.
- She undertook most of the work of the Chief Engineer and project-managed the completion of the Brooklyn Bridge when her husband was taken ill.
- The bridge is one of the most famous in the world.

What were her other achievements?

- She worked for and gained a Law degree, at a time when few women were able to go to university.
- She worked on many women's causes and for the Relief Society during the Spanish-American War.




New York, United States


The Brooklyn Bridge

Where could your learning take you?

- What is a field engineer?
- What are your big questions? Can you do some research at home to find answers?
- Use the QR code to find out more about different types of bridges.




<https://www.youtube.com/watch?v=0VnR9Pefcno>



Emily Roebling

LINKED CHALLENGE
To build a bridge between two supports that will hold 50g

ACTIVITY OVERVIEW

Two groups with two different sets of equipment (see resources list).
Activity leader to encourage children to explore different masses: 10g, 20g, 50g.
Activity leader to set initial challenge for children and let them explore the equipment.
Children reminded they can decide to ask for a 'top tip' as a group if they find the challenge difficult. Activity leader to then determine how much of a pointer the group needs to get on track. *Building the bridge between two tables will make this easier.
When testing as a group, activity leader to begin with the smallest mass and work upwards to test the strength of the bridge.

KEY FACTS/SCIENCE

Bridges are built to cross an area without blocking the way underneath; for example, a stretch of water or a road. There are many different types of bridges, built for different specifications. *Check out the QR code for more information.
The Brooklyn Bridge is a suspension bridge. This is a bridge that has towers to which are attached cables, as well as anchors at either side of the deck. This allows the forces on the bridge to spread out, creating tension in the cables and pushing down through the towers.
A beam bridge is the simplest bridge. The deck (the beam) rests across supports at each end. This is the type that children will be most likely to make.



RESOURCES

GROUP 1	GROUP 2
Newspaper Cardboard Paperclips	Garden canes Lollipop sticks

GENERAL RESOURCES
10g, 20g and 50g masses
Sticky tape
Scissors

QUESTIONS/FURTHER LEARNING

- Which is the strongest bridge?
- How do the materials used effect how much the bridge can hold?
- How could you improve your bridge?
- What different types of bridges are there?

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To download the STEM club resource packs, please visit:
www.pstt.org.uk/resources/curriculum-materials/childrens-university-stem-clubs

For more supporting resources from the Primary Science Teaching Trust, please take a look at our resource pages:
www.pstt.org.uk/resources