

Engineering Our World

A series of activities which use famous scientists, engineers and artists as a springboard for group-based engineering activities. Ideal for use in a weekly club.

A TYPICAL SESSION

In each session, the children carry out an investigation/activity based on a famous engineer/scientist/artist. These are a mix of males and females of various races, ages and disciplines.

Format of a session:

- Activity leader to share the week's person with the group and explain the reason he/she is famous.

A simple fact sheet is provided to facilitate this, (and may be displayed on an interactive board), including: name, significant dates, achievements, photographs/diagrams, website links/QR codes for future learning/activities that can be completed at home. These fact sheets are then taken home by the children each week to encourage them to share their findings with their family and take their learning further.

- Using the activity sheet, the leader sets the children a challenge linked to the famous person.

The activity sheet provides a resource list, details on how to set up the activity, key facts/science and questions/further learning. Ideally, children are arranged in groups, where each group is provided with different resources to use so that outcomes can be compared. At any point during the session, children can ask the activity leader for a 'top tip' to help them complete the challenge. Activity leaders are to try to keep these tips to a minimum, to allow children to explore and find things out for themselves.

- Activity leader brings the groups together at the end of the activity to discuss the challenges the children faced, to share their successes and to discuss what they have discovered.

SETTING UP THE CLUB

- Children's University.

*These club activities are validated by the [Children's University](#) and as such count towards accredited learning for any children taking part in the scheme. The stamp code a child will need to add this to their online passport is **Orange 8978**. This can be shared with the child after each of the 8 sessions and written in their Passport to Learning.*

- Select the children.

Group leaders should aim for a mix of race, gender and ability.

- Number of children: up to 12, to allow for different groups sizes.

Lollipop sticks could be used to determine groupings and allow children to work in different groups each time. Numbers written on the bottom of lollipop sticks, selected at random by each child, determine group.

RESOURCES AND PREPARATION

FAMOUS PERSON	FOCUS	EQUIPMENT
Rube Goldberg	Chain reaction	Tennis balls, containers, dominoes, ramps, toy cars, marbles, Lego, junk resources: cardboard tubes, boxes etc.
Mary Sherman Morgan	Balloon rockets	Selection of balloons, tape, straws, toilet-roll tubes, paper clips, card, selection of string, wire, metre ruler, scissors.
Marie Curie	Things that cannot be seen	Selection of liquids including different oils and glycerol, rubber gloves, clear beakers, marbles, test tubes and other clear objects, lemon/lemon juice, paint brushes, white paper/card, hairdryer, watercolour paint, lime, orange.
Leonardo da Vinci	Flying	Straws, tape, rulers, scissors, variety of paper: different colours and thickness.
Isambard Kingdom Brunel	Floating	Lollipop sticks, cotton reels, plastic bottles, yoghurt pots, tape, string, card, scissors, marbles, tank/large plastic guttering.
Gustave Eiffel	Structures	Marshmallows, spaghetti, midget gems, cocktail sticks, metre ruler, scissors.
Emily Roebling	Bridges	Newspaper, cardboard, paperclips, garden canes, lollipop sticks, 10g, 20g and 50g masses, tape, scissors.
Stephanie Kwolek	Egg protector	Tape, scissors, hard boiled eggs, tape measure/metre stick, tennis ball and a variety of materials: cardboard, paper, straws, plastic, lollipop sticks, egg boxes, pipe cleaners, cardboard tubes, packing materials, newspaper.