

LEGO Engineering: KS2 D&T workshop

After exploring the key features of specialist REME vehicles, on display in the museum, students have a chance to push their skills in this engineering task. Pupils would be working in small groups of either twos or threes to build working Lego machines to specific set criteria.

Proposed sample Timetable

One class timetable (maximum of 34 pupils)

Times	Min	Task
09:45 - 10:00	15	Arrival, toilets and Cloakroom
10:00 - 10:05	5	Whole class briefing
10:05 - 10:25	20	Go find
10:25 - 10:35	10	Task briefing and planning
10:35 - 11:30	55	Build and trial devices
11:30 - 11:55	25	Presentation and test
11:55 - 12:00	5	Tidy up and feedback
12:00 - 12:45	45	Lunch
12:45 - 14:15	90	Visit the museum & Shop (optional extra)
14:15 - 14:30	15	Goodbye and depart

A revised timetable can be made available for groups larger than 34 pupils.



Pupils explore the vehicles on display in the Museum.



Teams, each with a LEGO set build a functional vehicle with no instructions.



This session encourages resilience and teamwork to overcome problems.



At the end, the pupils' vehicles are tested and judged on pre-set criteria.

Proposed schedule

Arrival (15 min)

The school group will be greeted by a member of staff on arrival. They will be escorted to the cloakroom, be shown where the toilets and where the group is to gather for the briefing.

Briefing (5 min)

A member of museum education staff will brief the group. A great chance to welcome the group to the museum and explain what the outcome of the day will be. Before getting into any detail, a safety announcement should be made, highlighting what to do in a fire, etc.

A brief overview of REME and some basic facts about the Corps should then be given. This will help the group gain a context for the day. Again revisit the aims of the group's visit, what they will achieve. If needed a run through of the day's timetable may help speed things up later on as everyone will know what is happening and when.

Focus on electronics within REME and what use they have within the Army. Talk about remote control vehicles. Ask them what sort of roles remote vehicles can have in the Army.

Go find (20 min)

In smaller groups the pupils need to find various devices on display relevant to the task set. They may have a fact sheet to help them pick apart the key elements, power, control, wheels, motors etc.

Task briefing (10 min)

Get feedback from the group. Give them their task. Give them a list of parts. Tell them how long they will have to build it. Explain how they will be marked. Point out any other restrictions on the task, as well as any safety issues with tools etc.

Build and trial (55 min)

Using the LEGO Education sets the class in their groups need to build their devices. Get them to trial and adapt them as the build progresses. Get the group prepared for the test, at which they will need to make a small presentation about their device and answer some questions.

Presentation and test (25 min)

After lunch, each team trial their device. A small presentation about what they built will be needed, along with a quick Q&A. Teams will be mark out of ten in various categories; Team Work, execution of design, aesthetics, task competition etc

Tidy (5 min)

Clear their work areas away, this could be done during the build phase and may not be required. A quick feedback on how they did followed by announcing how much they scored.

Visit the museum & Shop (90 min or less if desired)

Visit the museum as an optional extra to the workshop, which is included in the price. Chance to explore the museum in groups, spending more time in the gallery investigating areas not covered by the morning visit. If desired, the class could also visit the shop in groups.

Depart (15 min)

Back in the museum a member of museum staff makes a quick summery of the day and thank the school for coming. School then gathers positions and leaves for the coach.

Curriculum areas covered**KS2 D&T**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products
- understand and use electrical systems in their products