



### OVERVIEW

Engineering KS4 students at ICA will apply maths and science to solve real-world problems. This involves an understanding of the different disciplines of engineering and how they have shaped the products and projects of the modern world. Students will be able to read and produce technical drawings, select appropriate materials (along with tools and machinery) and know how to carry out a practical task. Students will be expected to work in a safe manner, in line with current health and safety legislation.

### Autumn

#### Unit 1 – (Written Exam)

- Health and Safety in Engineering
- Engineering Disciplines
- Engineering Tools and Equipment.

#### Unit 2 – (Coursework) Storage Box Project

- Research
- Engineering Drawing – CAD / Hand Drawn
- Planning for Production – Flowcharts
- Manufacturing using Timber and Plastic
- Project Evaluation

#### Assessment:

Books and practical work will be marked and assessed throughout the project.

Unit 1 end of term assessment

#### Personal development:

Students will develop skills for life through the practical designing and manufacturing activities in the project.

### Spring

#### Unit 1 – (Written Exam)

- Engineering Materials (Timbers, Plastics, Metals & Composite)
- Engineering Drawings

#### Unit 2 – (Coursework) Steel Coat Hook Project

- Research – Risk Assessment / Tools & Equipment
- Engineering Drawing – CAD / Hand Drawn
- Production Plan
- Manufacturing using Mild Steel
- Project Evaluation

#### Assessment:

Books and practical work will be marked and assessed throughout the project.

Unit 1 end of term assessment

#### Personal development:

Students will develop skills for life through the practical designing and manufacturing activities in the project.

### Summer

#### Unit 1 – (Written Exam)

- SI Units of Measurement
- Applied Science and Maths in Engineering

#### Unit 2 – (Coursework) Bridge Project

- Research
- Engineering Drawing – CAD / Hand Drawn
- Production Planning
- Manufacturing using Birch Plywood
- Project Evaluation

#### Assessment:

Books and practical work will be marked and assessed throughout the project.

Unit 1 end of term assessment - mock exam paper.

#### Personal development:

Students will develop skills for life through the practical designing and manufacturing activities in the project.

#### Useful resources for supporting your child at home:

Online platforms such as Technology Student.com and BBC Bitesize.

Students will be provided with an Engineering Revision Booklet.

#### Homework:

Homework will be set every week. Students will need to use the revision materials provided to complete the set task.