

Industrial Technology

KS3

Format	Purpose
Year 7	<p>Module 1: Graphics. Pupils learn how to measure, mark out and use cutting tools in working to a deadline making a card box. This links with the product made in other lessons with Consumer Technology. The two components come together to make a complete Ballbearing Game.</p> <p>Module 2: Structures. Pupils learn how to make a structure to support an intended 1kg mass. They use measuring and cutting skills from module 1 and also learn to work in teams.</p> <p>Module 3: Electronics / Bread boarding. This requires pupils to learn about components and to build circuits from pictures and wiring diagrams. Fine motor skills used in projects 1 and 2 are extended. This is also a taster for electronics at GCSE level.</p> <p>Module 4: CAD/CAM. Computer Aided Design and Manufacture is used to design and make 'earphone wraps'. Pupils will learn how to use 2D-Design and laser cutters, becoming independent operators. Designing to sizes using measuring skills learnt this year is essential.</p> <p>All four projects above link directly to the new GCSEs commencing in September 2017.</p>
Year 8	<p>One module for 19 weeks: Wooden Box Project. This project builds upon Year 7 measuring and designing skills but introduces woodworking tools. CAD/CAM can be used too. New learning includes isometric and orthographic drawing techniques in readiness for Year 9 and GCSE.</p> <p>Pupils practise cutting wood joints, isometric sketching and isometric drawing and will receive marks and guidance before applying them in making a wooden box for final assessment. This emulates KS4 in Years 10 & 11.</p>
Year 9	<p>One module for 19 weeks: CAE – mood lamp. Computer Aided Engineering involves computers being used to design, model and manufacture a final product. New learning is getting pupils to design for a client, usually someone at home, which emulates GCSE requirements. Most homework involves taking designs to their client and discussing and recording progress.</p> <p>Prior learning of sketching using isometric, orthographic drawing and using 2D-Design and laser cutter is further developed.</p>

KS4

Format	Purpose
Year 10	Two GCSEs are currently offered: Electronic Products and Resistant Materials. Pupils spend Year 10, typically up to Easter, re-visiting KS3 learning whilst also being introduced to a greater depth of technical knowledge and a wider range of workshop skills. This widening of knowledge is intended to develop the independence to work on their own in completing Year 11 coursework to the rules of controlled assessment.
Year 11	Lessons are based around designing a product and making a product under the strict rules of controlled assessment. Pupils work on their own project and are required to make progress under supervised safe working conditions. Teachers cannot provide specific instructions to individuals but can advise pupils on common issues. All follow specific GCSE portfolios. Tracking sheets in place tend to be A3 on teachers' walls.

KS5

Format	Purpose
Year 12	<p>Students spend three hours per week classroom based and two hours per week workshop based. At the start of the year theory of manufacturing processes, designing and materials is taught leading up to handing in product investigation coursework. Alongside this, students experience using materials and workshop tools in making products as the second part of their coursework.</p> <p>The culmination of this learning is the Product Design module where students design and make a prototype 'new product' applying their previous learning. This requires students to develop their independence further by applying the research, analysis and evaluative skills learnt in KS3, KS4 and KS5 fully.</p>
Year 13	<p>Skills learned in Year 12 are consolidated by revisiting materials and processes but with a commercial view.</p> <p>Students are expected to apply prior learning fully and produce a commercially viable product for a client. Three hours is allowed for this initially, though this can be adjusted if necessary.</p>