



Curriculum Overview | KS3 Technology 2022-23

What will my child learn in Technology?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
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**All Year 7 students will complete a 9 week rotation in the following areas:
Computing, Food, Textiles and Product Design**

Year 7	<u>Computing (9 weeks)</u>	<u>Food (9 weeks)</u>	<u>Textiles (9 Weeks)</u>	<u>Product Design</u>
	<ul style="list-style-type: none"> ○ Computer System: E-safety, Passwords, File Management, Cloud Computing ○ Hardware: Input/Output, Secondary Systems ○ Computational Thinking: Abstraction, Decomposition, Pattern Recognition, Algorithms ○ Data Representation: Binary, Image Representation, File types, Quality 	<ul style="list-style-type: none"> ○ Introduction to Health Hygiene & Omelette ○ Knife Safety & Fruit Salad ○ Eatwell Guide and Pizza Bread ○ Introduction to Nutrients and Stir Fry ○ Effects of Sugar, weighing and measuring ○ Seasonality and Soup ○ Product Analysis & Scones Experiment 	<ul style="list-style-type: none"> ○ Introduction to health and safety in Textiles. ○ What are textiles and where are they used. ○ Introduction to using a client brief to create a specification and inform design choices. ○ Creating, annotating design ideas. ○ Introduction to product analysis. ○ Introduction to sewing machine safety and sewing of straight lines. . 	<ul style="list-style-type: none"> ○ Health and safety in and around the workshop, ○ Analysis of products using ACCESS FM ○ Using different sketching techniques to come up with design ideas ○ Soldering/electronics knowledge ○ Theory on environmental issues of plastic and where plastic comes from. ○ Theory on manufactured woods (properties/types etc) ○ Using practical skills to create a functional prototype of a design idea that solves an original problem ○ Evaluating design decisions throughout the design process





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Year 8	<p>Computing (9 weeks)</p> <ul style="list-style-type: none"> ○ Hardware: CPU, Performance, Memory, Secondary Storage ○ Networking: LAN/WAN/PAN, Hardware, Connection and Network security. ○ Computational Thinking: Developing Algorithms, Sequence, selections, Iterations, Testing, Debugging ○ Data Representation: Binary conversions, Additions, Scripting, Character Sets, Units of data 	<p>Food (9 weeks)</p> <ul style="list-style-type: none"> ○ Introduction to Health Hygiene and Hokey Pokey ○ Coagulation and Cooking with eggs ○ Product Analysis and Smoothies Experiment ○ Product Analysis Mac n Cheese ○ American Cooking and Burgers ○ Italian Cooking and Spaghetti Bolognese ○ Indian Cooking and Curry ○ Peoples' Nutritional Needs ○ Cake making methods Lemon Cake 	<p>Textiles (9 Weeks)</p> <ul style="list-style-type: none"> • Learn how to safely operate the sewing machine • Learning how to pin for the machine, iron safely, allocate seam allowances and sew basic seams. • Learn how to use fabric pens and bondaweb to applique your design to your cushion. • Learn pattern cutting and develop your sewing and seam allowance skills. • work with different fabrics and components whilst monitoring quality control and evaluating your work. • Finishing a product to a good standard. 	<p>Product Design (9 Weeks)</p> <ul style="list-style-type: none"> ○ Health and safety in and around the workshop, how to use each tool/machine safely. ○ Analysis of products using ACCESS FM ○ Creating in depth client profiles and design specifications in order to solve a problem ○ Using isometric drawing as part of the design process ○ Learning about different manufacturing techniques (CAD/CAM) ○ Soldering/electronics knowledge ○ Using a variety of tools to come up with a design prototype that solves an original problem ○ Evaluating design decisions throughout the design process 		





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Year 9	<u>Computing (9 weeks)</u> <ul style="list-style-type: none"> ○ System Security: Malware, Protection methods, encryption ○ Networking: Sequencing and Variables, ○ Algorithms and Programming ○ Practical Application of Programming 	<u>Textiles (9 weeks)</u> <ul style="list-style-type: none"> • Clients and Cultures • Sustainability and ethics • Scales and tolerances • Computer aided design and sampling • Branding and making a pencil case 	<u>Food (9 weeks)</u> <ul style="list-style-type: none"> ○ Introduction to Health Hygiene and Jerk chicken skewers ○ Food Safety & Meat balls ○ Lasagna ○ Cooked v's ready made experiment ○ Food Poisoning Savoury rice ○ Dietary Needs Tuna pasta bake ○ Factors that affect food choices Pancake Experiment ○ Pizza 	<u>Product Design (9 Weeks)</u> <ul style="list-style-type: none"> ○ Health and safety in and around the workshop, how to use each tool/machine safely. ○ Analysis of products using ACCESS FM ○ Creating in depth client profiles and design specifications in order to solve a problem ○ Using isometric drawing as part of the design process ○ Learning about different manufacturing techniques (CAD/CAM) ○ Learning about core exam content such as sustainability, energy sources and material properties & origins ○ Soldering/electronics knowledge ○ Using a variety of tools to come up with a design prototype that solves an original problem ○ Using manufacturing methods during the design of a steady hand game and eco house ○ Evaluating design decisions throughout the design process 		

In Year 10 and 11 students can study a range of courses this includes:

Eduqas Design and Technology (With DT or Textiles Specialism)

Eduqas Food Preparation and Nutrition.

Cambridge Nationals in Engineering Design





Curriculum Overview | KS4 Technology 2022-23



What will my child learn in Technology?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	UNIT – MATERIALS <ul style="list-style-type: none"> Papers and boards Natural and manufactured timbers Ferrous and non ferrous metals Thermosetting and thermoplastics Natural, synthetic, blended and mixed fibres, and woven, non-woven and knitted textiles 	UNIT – Smart materials, composites and technical textiles <ul style="list-style-type: none"> Modern materials Smart materials Composites Technical textiles 1 Technical textiles 2 	New and Emerging Technologies & Informing Design Decisions & Energy Generation and Storage <ul style="list-style-type: none"> New and emerging technologies: product life cycle New and emerging technologies: production techniques Critical evaluation of new and emerging technologies: sustainability and the environment Critical evaluation of new and emerging technologies: future developments Energy generation and storage: fossil fuels 	UNIT - Design and Technology and Our World - New and Emerging Technologies & Informing Design Decisions & Energy Generation and Storage <ul style="list-style-type: none"> Energy generation and storage: renewable energy Energy generation and storage: nuclear power Energy generation and storage: energy storage 	UNIT - Electronic systems, Mechanical components and programmable components <ul style="list-style-type: none"> Input and output devices Feedback and control devices Processes and microcontrollers Types of movement, levers and linkages Rotary systems 	NEA I <ul style="list-style-type: none"> Introduction to the coursework and go through contexts Mind map of ideas page Client profile/mood board Existing Products – analysis Company research Questionnaire page <p>Start of NEA</p> <p>Subject specific Knowledge (Textiles OR Product Design)</p>
NEA Coursework Preparation Content and Practice <ul style="list-style-type: none"> understanding design and technology practice, understanding user needs writing a design brief and specifications, investigating challenges developing ideas and investigating the work of others using design strategies and communicating ideas developing a prototype and making decisions 				In-depth knowledge and understanding is presented in five clear topic areas: <ul style="list-style-type: none"> selecting and working with materials and components marking out using tools and equipment using specialist techniques using surface treatments and finishes 		





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Year 11	<p>Y11 NEA:</p> <p>Students to complete Section A (research) Students to complete Section B (design brief and specification) Students to start Section C (Generating and developing design ideas)</p> <p>Exam content:</p> <p>UNIT – Continuing with Mechanical components and programmable components Types of movement, levers and linkages Rotary systems</p>	<p>Y11 NEA:</p> <p>Students to continue and complete Section C (Generating and developing design ideas)</p> <p>Exam content:</p> <p>UNIT – In depth knowledge and understanding.</p> <p>Students will learn about either Timbers or Textiles as part of their in depth knowledge section for part B of their exam</p>	<p>Y11 NEA:</p> <p>Students to start Section D (Manufacturing a prototype)</p> <p>Exam content:</p> <p>UNIT – In depth knowledge and understanding - Continued</p> <p>Students will continue to learn about either Timbers or Textiles as part of their in depth knowledge section for part B of their exam</p>	<p>Y11 NEA:</p> <p>Students to complete Students to Start and complete Section E (Manufacturing a prot</p> <p>Exam content:</p> <p>Exam revision on 'core knowledge and understanding'</p> <p>Students will revisit areas taught in Y10 and Y11 to boost their knowledge leading up to their summer exam</p>	<p>Y11 NEA:</p> <p>Exam content:</p> <p>Exam revision on 'core knowledge and understanding'</p> <p>Students will revisit areas taught in Y10 and Y11 to boost their knowledge leading up to their summer exam</p>	Exam revision

In Year 10 and 11 students can study a range of courses this includes:

Eduqas Design and Technology (With DT or Textiles Specialism)

Eduqas Food Preparation and Nutrition.

Cambridge Nationals in Engineering Design





Curriculum Overview | KS4 Food 2022-23



What will my child learn in Food?

	o Term 1	o Term 2	o Term 3	Term 4	o Term 5	o Term 6
GCSE Food Preparation and Nutrition						
Year 10	<ul style="list-style-type: none"> Microorganisms, food spoilage and food safety. Commodities: provenance, nutritional contribution, food science, storage and preparation of fruit and vegetables, herbs and spices. Health and safety and knife skills. Bread dough and the functions of their ingredients. Enzymic browning experiment 	<ul style="list-style-type: none"> Nutrition: macro and micronutrients their functions in the body, sources, and the effects of deficiency. The Eat well plate. Adapting dishes to make them healthier impact of adapting Ingredients. Dietary requirements Adapting dishes to make them healthier fairy cake experiments Planning foods for special diets. RDI ages and stages. 	<ul style="list-style-type: none"> Nutrition assessment project: Using client profiles and adapting existing recipes to meet their cultural/religious, age and special dietary need. Nutritional analysis Planning, assessed practical. Commodities: provenance, nutritional contribution, food science, storage and preparation of dairy foods and cereals. Pastry making (short crust, choux, rough puff, filo) 	<ul style="list-style-type: none"> Commodities: provenance, nutritional contribution, food science, storage and preparation of meat, poultry, fish and eggs. 	<ul style="list-style-type: none"> Cake making and cake making theory. Full NEAI Mock assessment Including research, hypothesis, methodology, experiment and conclusion. 	<ul style="list-style-type: none"> Mock NEAI feedback and opportunity to redraft Mock exam feedback Commodities: provenance, nutritional contribution, food science, storage and preparation of sugars, fats. Packaging and waste.

In Year 10 and 11 students can study a range of courses this includes:

Eduqas Design and Technology (With DT or Textiles Specialism)

Eduqas Food Preparation and Nutrition.

Cambridge Nationals in Engineering Design





Curriculum Overview | KS4 Food 2022-23



What will my child learn in Food?

	o Term 1	o Term 2	o Term 3	o Term 4	o Term 5	o Term 6
Year 11	<p>NEA 1 released 1st September</p> <p>15% of the Final grade: Food science experiment</p> <p>Including research, hypothesis, methodology, experiment and conclusion.</p> <p>Homework on revision topics set in line with the mock paper they will sit in November and any areas of content that still need to be covered by the specificatio</p>	<p>Mock exams Mock exam feedback</p> <p>NEA 2 brief released mid-November. Worth 35% of the final grade.</p> <p>Begin research for NEA2 – Section A 15 marks</p> <p>Homework on revision topics set in line with the mock paper they will sit in February.</p>	<p>Continuation of research. Trailing for NEA 2</p> <p>Final choices made and justification.</p>	<p>Mock exams Mock exam feedback</p> <p>NEA2 Planning for assessment</p> <p>NEA2 section B: 3 hour practical assessment.</p> <p>NEA section C Evaluation</p> <p>Revision session begin.</p> <p>Homework guided revision for the final exam.</p>	<p>Targeted revision for the GCSE Exam 50% of the final grade and Other Final exams</p> <p>Homework guided revision for the final exam.</p>	<p>Final exams</p>





Curriculum Overview | KS4 Engineering 2022-23



What will my child learn in Engineering?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	<p>R038 Principals of Engineering Design Designing processes</p> <ul style="list-style-type: none"> ○ Stages involved in design strategies ○ Stages of the iterative design process ○ Design Requirements ○ Types of criteria included in an engineering design specification. 	<p>RO38/39 Communicating design outcomes. Types of drawings used in Engineering - Free hand sketches, oblique, isometric, orthographic, exploded view, assembly drawings, block diagrams, flowcharts, circuit diagram and wiring diagram. Using CAD drawing software</p>	<p>R038 Principals of Engineering Design Design Requirements</p> <ul style="list-style-type: none"> ○ How manufacturing considerations affect design. ○ Influences on Engineering product design. ○ Communicating Design Outcomes ○ Working drawings 	<p>R038 Principals of Engineering Design Design Requirements</p> <ul style="list-style-type: none"> • Working drawings <p>Evaluating Design Ideas</p> <ul style="list-style-type: none"> • Methods of evaluating design ideas • Modelling Methods • Methods of evaluating a design outcome. 	<p><u>START OF Y11 NEA R040</u> Introduction to the coursework and go through contexts</p> <p>NEA Coursework Preparation Content and Practice</p>	<p>NEA Coursework Preparation Content and Practice</p>
Y10 NEA NEA Coursework Preparation Content and Practice					Y11 NEA • NEA Coursework Preparation Content and Practice	





Curriculum Overview | KS4 Engineering 2022-23



What will my child learn in Engineering?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 11	<p>NEA Component 2 Learning Aim A - Understanding materials, components and processes for a given engineered product.</p> <p>Exam / NEA theory on manufacturing processes.</p> <p>Paper 1 exam practice.</p> <ul style="list-style-type: none"> • Pendulum experiment. • Brake pad experiment. <p>Paper 2 exam practice.</p> <ul style="list-style-type: none"> • Light bracket exam paper. 	<p>NEA Component 2 Learning Aim A - Understanding materials, components and processes for a given engineered product.</p> <p>Exam / NEA theory on manufacturing processes.</p> <p>Paper 1 exam practice.</p> <ul style="list-style-type: none"> • Slope and ping pong ball. <p>Paper 2 exam practice.</p> <ul style="list-style-type: none"> • Weird handle • Screwdriver handle 	<p>NEA Component 2 Learning Aim B - Investigate a given engineered product using disassembly techniques</p> <p>Exam / NEA theory on materials and manufacturing processes.</p> <p>GCSE exam.</p>	<p>NEA Component 2 Learning Aim B - Plan the manufacture and safely reproduce/inspect/test a given engineered component.</p> <p>Exam practice based on Examiners report</p>	<p>NEA Component 2 Learning Aim B - Plan the manufacture and safely reproduce/inspect/test a given engineered component.</p> <p>Exam practice based on Examiners report</p>	<p>NEA Component 2 Learning Aim B - Plan the manufacture and safely reproduce/inspect/test a given engineered component.</p> <p>Exam practice based on Examiners report.</p> <p>GCSE exam.</p>

Y11 NEA

- NEA Coursework Preparation Content and Practice

