



Curriculum Overview | Computer Science and IT 2022-23



What will my child learn in Computer Science/ IT?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<p>All Year 7 students will complete a 9 week rotation in the following areas: Computing, Food, Textiles and Product Design</p>						
Year 7	<p>Computing (9 weeks)</p> <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 	<p>Food (9 weeks)</p> <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 	<p>Textiles (9 Weeks)</p> <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. . 	<p>Product Design</p> <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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<p>Year 8</p>	<p><u>Computing (9 weeks)</u></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><u>Food (9 weeks)</u></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><u>Textiles (9 Weeks)</u></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><u>Product Design (9 Weeks)</u></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, LAN, WAN, The world wide web, typologies ○ Algorithms and Programming ○ Practical Application of Programming: Using Variables, different types of data types, using selections, data structures 	<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:

Computer Science

Vocational ICT





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	Cambridge Nationals in IT					
Year 10	<p>R050: TAI - Design tools (1.1 Types of design tools)</p> <p>R060: TAI - Planning and designing the spreadsheet solution (1.1 Design tools)</p> <p>R070 TA2 - Designing an AR model prototype (2.1 Planning and design consideration, 2.2 Design tools)</p>	<p>R050: TA2 - Human Computer Interface in everyday life (2.1 Purpose, importance and use of HCI in application areas, 2.2 Hardware considerations, 2.3 Software consideration, 2.4 User interaction methods)</p> <p>R050: TA3 - Data & Testing (3.1 Information & data, 3.2 Data use)</p> <p>R060: TAI.2 HCI design conventions and principles (1.2.1 Functionality, 1.2.2 Types of outputs, 1.2.3 HCI navigation)</p>	<p>R060: TA2 Creating the spreadsheet solution (2.1.1 Data handling & manipulation, 2.1.2 Techniques to generate the outputs, 2.1.3 User interface)</p> <p>R060: TA3 - Testing the spreadsheet solution (3.1 Test the user interface and technical aspects of the spreadsheet solution)</p> <p>R060: TA4 - Evaluating the spreadsheet solution (4.1 Methods used to evaluate)</p>	<p>R060: NEA Assessment (working on)</p> <p>R070: TAI - Augmented Reality (AR) (1.1 Purpose and uses of AR, 1.2 Types of AR and user interaction, 1.3 Devices used with AR)</p>	<p>R060: NEA Assessment (working on)</p> <p>R060: NEA Assessment (submit for moderation)R050: TA3 Data and testing (3.3 Data collection methods, 3.4 Storage of collected data)</p> <p>R050: TA5 - Digital communications (5.1 Types, 5.2 Software, 5.3 Digital devices, 5.4 Distribution channels, 5.5 Audience demographics)</p> <p>R070: TA2 - Designing an AR model prototype (2.1 Planning and design consideration, 2.2 Design tools)</p>	<p>R050: TA6 - Internet of Everything (IoE) (6.1 Use of IoE, 6.2 Application areas in everyday life)</p> <p>R070: TA3 - Creating and AR model prototype (3.1 AR model prototype, 3.2 Triggers, 3.3 Layers/ user interaction, 3.4 Information output)</p>





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Year 11	<p>R070: Recap - TA2 - Designing an AR model prototype (2.1 Planning and design consideration, 2.2 Design tools)</p> <p>R070: Recap - TA3 - Creating and AR model prototype (3.1 AR model prototype, 3.2 Triggers, 3.3 Layers/ user interaction, 3.4 Information output)</p> <p>R070: TA4 - Testing and reviewing (4.1 Testing, 4.2 Reviewing the process of creating the AR model prototype)</p>	<p>R070: NEA Assessment (working on)</p> <p>R050: TA3 testing Recap</p>	<p>R070: NEA Assessment (submit¹ for moderation)</p> <p>R050: TA3 - Data and testing (3.5 Application of testing to a range of contexts)</p> <p>R050: TA4 – Cyber security & legislation 4.1. Threats. 4.2. Impact</p>	<p>R050: TA4 - Cyber-security and legislation (4.2 impact of attacks, 4.3 Prevention measures, 4.4 Legislation related to the use of IT systems)</p> <p>R050: Exam Revision</p>	<p>R050: Exam Revision</p>	Final Exams
OCR GCSE Computer Science						
Year 10	<ul style="list-style-type: none"> ○ Boolean Logic ○ Units ○ Data Storage ○ Designing, creating, refining algorithms. 	<ul style="list-style-type: none"> ○ Designing, Creating and refining ○ Algorithms ○ Programming Fundamentals ○ Data Types 	<ul style="list-style-type: none"> ○ Programming Techniques ○ Practical Programming skills 	<ul style="list-style-type: none"> ○ Binary – Characters – Images – Sounds – Compressions ○ Architecture of CPU ○ CPU Performance 	<ul style="list-style-type: none"> ○ Embedded systems ○ RAM/ROM/Cache ○ Secondary Storages ○ Network Topologies 	<ul style="list-style-type: none"> ○ Wired and Wireless networks ○ Protocols and layers ○ Practical programming revision.
Year 11	<ul style="list-style-type: none"> ○ Threats to systems and Networks ○ Operating Systems ○ Utility software ○ Ethical, Legal, Cultural and environmental impacts 	<ul style="list-style-type: none"> ○ Defensive Designs ○ Testing ○ Language ○ IDE – Integrated Development Environment 	<ul style="list-style-type: none"> ○ Practical Programming revision ○ Searching and Sorting Algorithms and Programming 	<ul style="list-style-type: none"> ○ Theory Revision ○ Practical Programming Revision 	<ul style="list-style-type: none"> ○ Theory Revision ○ Practical Programming Revision 	Final Exams