

West Hill School Technology Department Curriculum Map (Academic Year: 2021/22)



	Design & Technology	Electronics	Engineering	Food	Graphics
Year 7 THEMES	<ul style="list-style-type: none"> H&S in the D&T workshop Development of design and manufacturing skills – timber focused 	<ul style="list-style-type: none"> H&S in the Electronics workshop Soldering/de-soldering electronic components Simple theory: transistor, LED, resistors 	<ul style="list-style-type: none"> H&S in the Engineering workshop Development of design and manufacturing skills – metal focused 	<ul style="list-style-type: none"> H&S in the food kitchen Basic knife skills and preparation of fruits and vegetables Basic cooking skills using the hob, grill and oven Simple theory: healthy eating 	
<p>Pupils will be taught the following key themes:</p> <ul style="list-style-type: none"> Pupils will be taught health, safety and hygiene protocols within a food preparation environment Pupils will be taught key practical food preparation skills, as well as an understanding of healthy eating Pupils will be taught health and safety protocols within a technology workshop environment Pupils will be taught key practical technology knowledge, design and manufacturing skills within the three focus materials areas (timber, metal, electronics) 	<p>Project 1: OCC Puzzle project</p> <p>Understand the working properties of timber and man-made boards by making a simple 3-piece wooden puzzle with packaging. Learn how to use equipment safely (drilling, sawing, filing and sanding). Understand to need to finish materials. Learn about commercial packaging production.</p>	<p>Project 1: Moisture Sensor project</p> <p>Understanding of LED, transistor and resistor theory and practically applying their understanding and skills to make a simple torch and moisture sensor.</p>	<p>Project 1: Bottle Opener project (Level 1)</p> <p>Understand the about the properties of metals and develop basic metalwork fabrication techniques. Using steel to design, adapt and fabricate a custom bottle opener.</p>	<p>Project 1: Healthy Eating</p> <p>Understanding of the basics of healthy eating and develop practical skills to enable the cooking of a variety of healthy foods such as: fruit crumble, smoothie, muffins etc.</p>	
Assessment	<p>OCC Puzzle practical evaluation</p> <p>End of Unit Assessment</p>	<p>Moisture sensor practical evaluation</p> <p>End of Unit Assessment</p>	<p>Bottle opener practical evaluation</p> <p>End of Unit Assessment</p>	<p>Soya, Tofu, Beans, Nuts and Seeds Practical Assessment</p> <p>End of Unit Assessment</p>	

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	Design & Technology	Electronics	Engineering	Food	Graphics
Year 8 THEMES	<ul style="list-style-type: none"> H&S in the D&T workshop Development of design and manufacturing skills – plastics focused 	<ul style="list-style-type: none"> Risk assessment in the Electronics workshop Advanced circuit construction using an astable circuit Simple theory: Resistor/ Capacitor networks, R/C network, frequency, Integrated Circuit concepts 	<ul style="list-style-type: none"> H&S in the Engineering workshop Development of design and manufacturing skills – metal focused 	<ul style="list-style-type: none"> H&S in the food kitchen – cooking with raw meat Basic cooking skills - preparation of sauces and breads Basic cooking skills using the hob, grill and oven Simple theory: heat transfer, chemical raising agents 	
Pupils will be taught the following key themes: <ul style="list-style-type: none"> Pupils will be taught health and safety protocols within a technology workshop environment Pupils will be taught health, safety and hygiene protocols within a food preparation environment Pupils will be taught key practical food preparation skills, as well as an understanding of healthy eating Pupils will be taught key practical technology knowledge, design and manufacturing skills within the three focus materials areas (plastics, metal, electronics) 	<p>Project 2: Clock project</p> <p>Understand the working properties of polymers to manufacture a simple clock. Understand how to apply the work of others to their designs by using the features of a design movement. Understand the use of the design process in their work by doing basic research to support their designs. Understand the use of CAD/CAM in designing and using the laser cutter to manufacture their designs.</p>	<p>Project 2: Astable</p> <p>Understanding the theory of resistor capacitor networks, frequency of the output of a circuit and how it can be used to generate soundwaves and practically applying their understanding and skills to make a sound generating circuit utilising an astable Integrated Circuit.</p>	<p>Project 1: Bottle Opener project (Level 2)</p> <p>Understand the about the properties of metals and develop basic metalwork fabrication techniques. Using steel to design, adapt and fabricate a custom bottle opener.</p> <p>Differentiation work introduced using additional materials</p>	<p>Project 2: Bread & Sauce Making</p> <p>Understanding of the basics of heat transfer and chemical raising agents and develop practical skills to enable the cooking of bread and sauces.</p>	
Assessment	Clock practical evaluation End of Unit Assessment	Practice Circuit Assessment Astable Circuit Assessment End of Unit Assessment	Bottle opener practical evaluation End of Unit Assessment	Bread/Sauce Practical Assessment End of Unit Assessment	

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	Design & Technology	Electronics	Engineering	Food	Graphics
Year 9 THEMES	<ul style="list-style-type: none"> H&S in the D&T workshop Development of design and manufacturing skills – timber/plastics focused 		<ul style="list-style-type: none"> H&S in the Engineering workshop Development of design and manufacturing skills – metal focused 	<ul style="list-style-type: none"> H&S in the food kitchen – bacteria Basic cooking skills - preparation of pasta, pastry and cold desserts Basic cooking skills using the fridge, hob, grill and oven Simple theory: flour and fat properties, chilling procedures 	<ul style="list-style-type: none"> Understand the theory behind and develop skills in: basic graphics and sketching techniques in a variety of materials - perspective and crating, 3-D shapes, using a ruler, rendering
<p>Pupils will be taught the following key themes:</p> <ul style="list-style-type: none"> Pupils will be taught health and safety protocols within a technology workshop environment Pupils will be taught health, safety and hygiene protocols within a food preparation environment Pupils will be taught key practical food preparation skills, as well as an understanding of healthy eating Pupils will be taught key practical technology skills and knowledge within the three focus materials areas (plastics, timber, metal) Pupils will be taught key practical graphics skills and knowledge 	<p>Project 3: Speaker project</p> <p>Understanding how the properties of sound can be utilised to manufacture a passive amplifier. Previous skills of working with timber, man-made boards and polymers are developed further.</p>		<p>Project 3: Garden Trowel project</p> <p>Continue to develop their understanding of the properties of metals to design and create a garden trowel.</p>	<p>Project 3: Pastry & Cold Desserts</p> <p>Understanding of flour, fat properties and chilling procedures and develop practical skills to enable the cooking of pastry and pasta products, Swiss Roll and cheesecake.</p>	<p>Project 1: Introduction to Graphic Design</p> <p>To acquire skills in graphic communication by developing confidence in isometric sketching, an understanding of perspective and to develop skills in using a variety of materials used for graphic communication.</p>
Assessment	<p>Speaker practical evaluation</p> <p>End of Unit Assessment</p>		<p>Garden trowel practical evaluation</p> <p>End of Unit Assessment</p>	<p>Pastry and Cold Desserts Practical Assessment</p> <p>End of Unit Assessment/How to carry out Nutritional Analysis</p>	<p>Continual assessment</p>

West Hill School Technology Department Curriculum Map (Academic Year: 2021/22)



	Term 1		Term 2		Term 3	
Year 10 THEMES - Food Preparation & Nutrition	Year 10 THEMES - Food Preparation & Nutrition		Year 10 THEMES - Food Preparation & Nutrition		Year 10 THEMES - Food Preparation & Nutrition	
<p>GCSE Food Preparation & Nutrition (EDUQAS)</p> <p>Areas of Content:</p> <ul style="list-style-type: none"> Food commodities Principles of nutrition Diet and good health The science of food Where food comes from Cooking and food preparation 	Course Introduction-Assessment outline Hygiene and safety Safe Knife techniques Basic Nutrition-Macro/Micro nutrients. Intro-Protein/Carbohydrates/Fat Protein/Meat. Filleting Chicken/Fish Healthy Eating Guidelines 1 Eggs, Milk and Dairy Foods Related Practical Skills		Alternative Proteins Carbohydrates, Cereals and Bread Rice, Pasta, Flour Sugar/fibre Fats/oils, Fruit/Veg Vitamins/Minerals Sauce making Macro/micro nutrients-complimentary actions Energy/Planning balanced diets Special dietary requirements/Religions/allergies		Calculating energy and nutritional values Adapting recipes, meals and diets Energy Balance Why we cook food Heat transference Revision Lessons and tests	Mock exam preparation. 2 Weeks Work Experience.
Assessment	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5	End of Year mock examination
Year 11 THEMES – Food Preparation & Nutrition	EDUQAS Non-Examined Assessment 1		EDUQAS Non-Examined Assessment 2			
<p>GCSE Food Preparation & Nutrition (EDUQAS)</p> <p>Areas of Content:</p> <ul style="list-style-type: none"> Food commodities Principles of nutrition Diet and good health The science of food Where food comes from Cooking and food preparation 	Conserving Nutritive values Modify nutritive value and improve palatability. Positive use of Microorganisms. Working characteristics, functional, chemical Properties of. NEA 1: The Food Investigation Assessment	When things go wrong and how to remedy them. Packaging, Sustainability of food, Food poverty, food security, International cuisines, NEA 1: The Food Investigation Assessment	Primary and secondary food processing, Sensory and nutritional properties Technological dev, food modifications, NEA 2: The Food Preparation Assessment	Food Choice, Ethical Beliefs and Religions, Portion size and Costs, labelling, Developing recipes and Meals NEA 2: The Food Preparation Assessment	GCSE EXAM PREPARATION REVISION PAST PAPERS	
Assessment	Assessment 1	Assessment 2 (NEA 1)	Assessment 3	Assessment 4 (NEA 2)	Assessment 5 (Mock examination)	

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	Term 1		Term 2		Term 3	
Year 10 THEMES - Electronics	Monostable project/related theory		Astable project/ related theory		Comparator project /related theory	
<p>GCSE Electronics (EDUQAS)</p> <p>The students will study the following contained in Component 1 of the qualification.</p> <ul style="list-style-type: none"> Electronic systems and sub-systems Circuit concepts Resistive components in circuits Switching circuits Applications of diodes Combinational logic systems Component 2 Year 10 topics include timing circuits 	CAD simulation of project and circuit design, CAM circuit manufacture. Soldering / de-soldering techniques. Use of digital multimeter. Circuit testing and fault finding. Theoretical topics; P.D. Electrical current and resistance in series and parallel circuits. Ohms law Monostable time delay calculations. Oscilloscope graph interpretation. Resistor/ capacitor networks Pull up/down resistor in trigger circuit. LED protection resistor calculations. Potential Difference across components		CAD simulation of project and circuit design, CAM circuit manufacture. Circuit testing and fault finding Theoretical topics; Astable frequency including calculations. Mark/Space ratio including calculations Electrical power including calculations. Logic gates plus combinational logic. Logic redundant gates. Boolean expressions NAND gate equivalents Bipolar transistor theory plus gain calculations.		CAD simulation of project and circuit design, CAM circuit manufacture. Circuit testing and fault finding Theoretical topics: Op-Amp as a comparator. Potential dividers including calculations. Thermistor MOSFET theory plus gain.	
Assessment	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5	End of Year mock examination
Year 11 THEMES – Electronics	EDUQAS Non-Examined Assessment					
<p>GCSE Electronics (EDUQAS)</p> <p>The students will study the remaining Component 2 topics of the qualification.</p> <ul style="list-style-type: none"> Term 1 - NEA (design, build, test and evaluate their own electronic system). 	Extended system design and realisation task.		Component 2 topics. PIC theory plus flowcharts. Non-inverting and inverting amplifier including calculations and graphs. Counting systems / sequential systems Schmitt inverter Amplifier systems Diodes Interfacing digital to analogue circuits		Exam technique for extended questions. Control circuits.	
Assessment	Assessment 1 – NEA (Internally assessed – externally moderated (20% GCSE Value))		Assessment 2	Assessment 3	Assessment 4 (Multiple exam preparation assessments)	

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	Term 1		Term 2		Term 3	
Year 10 THEMES – Design & Technology	Focussed Practical tasks/related theory (materials)	Focussed Practical tasks/related theory (design issues)	Focussed Practical tasks/ and NEA	Focussed Practical tasks/related theory (materials)	Focussed Practical tasks/related theory (design issues)	Focussed Practical tasks/ and NEA
<p>GCSE Design & Technology Year 10 - EDUQAS Year 11 – AQA</p> <p>Areas of Content:</p> <p>Areas of Content:</p> <ul style="list-style-type: none"> • Technical principles • Designing and making principles • Analysing and evaluating designs • Social and ethical issues in design technology • Identifying and investigating design possibilities 	<p>2 focussed practical tasks developing hand tool skills, working with accuracy and precision.</p> <p>Theory lessons covering a range of materials, working properties and typical uses; New and emerging technologies; Design movements and the work of others; Product evolution; Ergonomics and Anthropometrics; Mechanical systems</p> <p>Students develop presentation skills; drawing systems; exploring and developing ideas.</p>	<p>2 focussed practical tasks developing use of CAD/CAM</p> <p>Theory lessons covering design strategies; Collaborative design; CAD/CAM; Scales and types of commercial manufacturing; Research and data collecting; synthesising and analysing data.</p>	<p>1 focussed practical task. Start of Non-Examined Assessment</p> <p>Theory lessons covering Sustainability; Moral and ethical issues; Impact of design on society and the environment.</p> <p>NEA - Students explore a design context leading to creating an individual design brief.</p>			
Assessment	Assessment 1	Assessment 2	Assessment 3	Assessment 1	Assessment 2	Assessment 3
Year 11 THEMES – Design & Technology	Non-Examined Assessment	Non-Examined Assessment		Non-Examined Assessment	Exam	
<p>GCSE Design & Technology Year 10 - EDUQAS Year 11 – AQA</p> <p>Areas of Content:</p> <ul style="list-style-type: none"> • Technical principles • Designing and making principles • Analysing and evaluating designs • Social and ethical issues in design technology • Identifying and investigating design possibilities • Designing and making prototypes 	<p>NEA – AO1</p> <p>Students explore the design context and research the topic and target market to develop an individual design brief and specification</p>	<p>NEA – AO2</p> <p>Students generate ideas through sketching and modelling and develop their design proposals through the use of iterative design to produce a final design, working drawings and a manufacturing specification. They realise their proposals by producing a functioning prototype.</p>	<p>NEA – AO3</p> <p>Students test and evaluate their designs and produce proposals on how their designs could be manufactured commercially</p>	<p>Exam preparation and technique.</p> <p>How to approach the 3 sections of the exam paper.</p>		
Assessment	Assessment 1 – NEA	Assessment 2 – NEA and November mock exam	Assessment 3 – NEA	Assessment 4 – Completed NEA	Assessment 5 (Multiple exam preparation assessments)	

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	Term 1	Term 2	Term 3
Year 10 THEMES - Engineering	Introductory skills-based units to equip students for modules	UNIT 9791: Engineering Design	UNIT 9792: Producing Engineering Products "TILT & TURN LAMP"
<p>GCSE Engineering Year 10 - EDUQAS Year 11 –EDUQAS</p> <p>Areas of Content:</p> <ul style="list-style-type: none"> • Introductory skills development unit • Development of understanding and skills of engineering design • Manufacture of engineering products • Development of understanding and skills to solve engineering design problems 	<p>Students tackle small projects to develop the required practical skills in metalwork and understand fixing techniques</p>	<p>The purpose of this unit is for learners to analyse engineered products in order to propose design solutions to meet requirements.</p> <p>Whether by making something new or adapting an existing product, engineers follow a DESIGN PROCESS. In this unit, students will learn about that design process. They will learn how to analyse a product so they can see what features make it work and how it meets certain requirements. They will learn how to take ideas from different products in order to produce a design specification for a product.</p>	<p>The purpose of this unit is for learners to use skills developed to produce an engineered product.</p> <p>Production engineers, skilled machinists and maintenance engineers will use a range of engineering processes, equipment and tools to make engineered products. They will work from engineering information, whether provided by design consultants, quality managers or colleagues, or they will produce their own information as they try out different ways of engineering a product.</p> <p>Through this unit, students will learn to interpret different types of engineering information in order to plan how to make engineered products. They will develop the skills needed to work safely with a range of engineering processes, equipment and tools. With these skills, they will learn to make a range of engineered processes that are fit for purpose.</p>
Assessment	Practical project assessment 1	Assessment 2/3	Assessment 4/5/6 – ongoing progress of examination practical task
Year 11 THEMES – Engineering	UNIT 9792: Producing Engineering Products "TILT & TURN LAMP"	UNIT 9793: Solving Engineering Problems	
<p>GCSE Engineering Year 10 - EDUQAS Year 11 –EDUQAS</p> <p>Areas of Content:</p> <ul style="list-style-type: none"> • Introductory skills development unit • Development of understanding and skills of engineering design • Manufacture of engineering products • Development of understanding and skills to solve engineering design problems 	<p>The purpose of this unit is for learners to use skills developed to produce an engineered product.</p> <p>Production engineers, skilled machinists and maintenance engineers will use a range of engineering processes, equipment and tools to make engineered products. They will work from engineering information, whether provided by design consultants, quality managers or colleagues, or they will produce their own information as they try out different ways of engineering a product.</p> <p>Students will learn to interpret different types of engineering information in order to plan how to make engineered products. They will develop the skills needed to work safely with a range of engineering processes, equipment and tools. With these skills, they will learn to make a range of engineered processes that are fit for purpose.</p>	<p>The purpose of this unit is for learners to use their knowledge and understanding of engineering processes and material properties to solve problems.</p> <p>Engineers can have a major impact on industry and society. The achievements they have made have improved the quality of our everyday life, from the buildings we live and work in to the transport we use to get around and how we enjoy our leisure time.</p> <p>Engineers are able to find solutions to problems, whether it is adapting or combining materials used to produce a product to make it withstand severe weather conditions or fixing materials in a different way to make something more portable. Problem solving is critical to working in engineering.</p> <p>In this unit students will learn about how engineers in the past have found solutions to problems and how other engineers use their ideas to solve problems today. They will learn about materials, processes and maths that engineers use and how they are used to solve problems. In solving problems, they will learn to follow a process and develop drawing skills to communicate their solutions</p>	
Assessment	Assessment 1/2 – ongoing progress of examination practical task	Assessment 3/4	Assessment 5 (Multiple exam preparation assessments)