



Curriculum Map Year 7, 8 and 9

Subject: Design and Technology.

Year group: 7

Please note that due to the students rotating throughout the year, students will only cover some of the following subjects.

	Desk Tidy	Ugly Dolls	Best of British - choc project	Mission to Mars	Biomimicry	Food skills 1	Food Skills 2	Perfect Picnics
<p>Content</p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p>Students will understand how to work safely and competently in the workshop.</p> <p>Be able to use a range of tools, equipment and machines safely and competently.</p> <p>To understand the design process as well as what is required to produce high level design work.</p>	<p>Students will understand properties of textiles and electronic components</p> <p>Students will learn about different manufacturing techniques</p>	<p>The project allows pupils to understand basic principles of net design, fonts and colour styles.</p> <p>Students will develop their understanding of designing and making and expand their practical skills in the use of paper, card and other graphic equipment.</p>	<p>Students will use their knowledge of programming to code a number of electronic devices to perform a number of functions.</p> <p>They will be able to use their design skills and ability to problem solve to overcome a series of challenges presented to them .</p> <p>They will understand how programming and robotics are essential to our everyday lives and how they will impact fields</p>	<p>Understand how the natural world impacts and the everyday products we use.</p> <p>How Biomimicry is shaping the future of D&T.</p> <p>Be able to produce creative ideas that are inspired by nature’s shape and form.</p> <p>Understand the design process and how we use feedback from a 3rd party to develop and improve our ideas.</p>	<p>Students will develop their basic practical skills. Students will use a range of equipment and demonstrate methods of heat transfer.</p> <p>Students will learn about the importance of weighing and measuring and carrying out sensory analysis as part of evaluation.</p> <p>Students will use the oven, hob and microwave safely and hygienically.</p>	<p>Students will develop their planning and making skills. They will carry out a comparison of shop bought soup products and use this evaluation to plan their own soup to make. Students learn how a basic recipe can be modified into different products.</p> <p>Students will use a range of equipment and demonstrate methods of heat transfer.</p>	<p>Students will explore personal hygiene, kitchen hygiene, food safety/storage, kitchen safety. They will use Sensory evaluations, write recipes and modify a recipe. They will use the Eatwell Guide and healthy eating guidelines to plan and prepare dishes suitable for a picnic considering transportation and food temperature controls.</p>



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				such as design, engineering and space exploration.				
<p>Skills</p> <p><i>Procedural Knowledge – 'Know How'</i></p>	<p>Safe workshop practice.</p> <p>Introduction to tool and machine use.</p> <p>Know how to mark out work accurately and effectively.</p> <p>Know how to present design work and how to act on the feedback of others to further their own design ideas.</p>	<p>students will develop manufacturing techniques relating to textiles and electronic circuits</p> <p>Students will develop the skills to communicate design ideas</p>	<p>>Health and safety with a particular focus on graphics equipment.</p> <p>>Marking out techniques, the use of templates and accuracy.</p> <p>>Take target market views about aesthetic and technical issues into account as they respond to briefs.</p> <p>>Students will develop the skills to communicate design ideas.</p>		<p>How to use primary and secondary sources of research.</p> <p>How to select information and apply it to your own work.</p> <p>How to present your initial ideas.</p> <p>How to use the feedback of others to inform your ideas and help develop them further.</p>	<p>In addition to the basic skills - creaming method, all in one method,, peeling, slicing dicing</p> <p>Heat transfer: baking, boiling, use of the microwave</p>	<p>In addition to the basic skills - peeling, slicing, dicing, making a yeast dough, how to knead, roll, and shape a dough, rubbing in method</p> <p>Heat transfer: baking, boiling</p>	<p>In addition to basic skills - peeling, slicing, dicing students will learn: rolling and shaping pastry, portion size,</p> <p>Heat transfer: baking, boiling, frying</p>
<p>Key Questions</p>	<p>How can we effectively join different materials.</p>	<p>how does an electronic circuit and components work?</p>	<p>Why is Logo important?</p> <p>What are the basic rules to</p>		<p>What is biomimicry?</p> <p>Why do designers look to</p>	<p>Why is it important to weigh out ingredients accurately?</p>	<p>How does yeast work to create a risen dough?</p>	<p>Which packaging materials are suitable to contain and preserve a picnic</p>



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	What is the correct tool that we need for the different processes?	What is the difference between decorative and joining techniques?	create successful packaging?		nature for inspiration? What is the strongest naturally occurring structure found in nature and why?	How does a microwave cook food?	Why do need to use strong flour when making a bread dough?	item during transport? Why are portion size and fragility of ingredients important factors when selecting recipes?
Assessment	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical Piece).	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical Piece).	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical Piece).		Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical Piece).	Knowledge gained, making skills demonstrated Ability to evaluate products	Knowledge gained, making skills demonstrated. Ability to evaluate products	Knowledge gained, making skills demonstrated and ability to evaluate idea against planned criteria
Literacy/ Numeracy/ SMSC/ Character	Marking out of the finger joint (x/y=z) How to annotate ideas in a D&T context. Ethical sourcing of materials and how to avoid wastage.	Calculate the value of resistors. Ethical sourcing of materials and how to avoid wastage.	Marking out techniques, the use of templates and accuracy. How to annotate ideas in a D&T context.		Annotations Confidence - Presenting to the class.	Use of descriptive words when evaluating Weighing and measuring ingredients Developing confidence and independence when carrying out planning practical tasks	Use of descriptive words when evaluating Weighing and measuring ingredients Developing confidence and independence when carrying out planning practical tasks	Writing recipes. Weighing and measuring ingredients. Recycling to avoid waste. Developing the confidence to select their own recipes to meet set criteria.



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Subject: Design and Technology

Year group: Year 8

Please note that due to the students rotating throughout the year, students will only cover some of the following subjects.

	Steady hand game	Pop-up Books	CAD jewellery	Mechanisms and Forces	Fruit & Veg in the kitchen	Food around the world	Healthy eating - 5 a day	Healthier choices for a healthier life
<p>Content</p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p>Students will continue to understand how to work safely and competently in the workshop.</p> <p>Students will continue to build their knowledge of how to use a range of tools, equipment and machines safely and competently.</p> <p>To understand the design process as well as what is required to produce high level design work.</p>	<p>To produce a range working pop-up cards/ book. Pupils will work out their ideas with some precision, taking into account how products will be used, who will use them, the mechanisms that could be used and their appearance.</p>	<p>Students will be introduced to CAD and CAM by using 2D design and the laser cutter to produce a phone/device stand.</p> <p>Students will understand the various factors that we must consider in the design of a product. In particular the user, environment and the product used.</p> <p>To continue to develop their design skills and work on the Isometric drawing to create complex shapes and designs.</p>	<p>Students will understand the five main forces that are found in structural engineering and be able to (tension, compression, bending, shear force and torsion).</p> <p>Students will look at famous architects and pieces of architecture and learn triangulation in structures is.</p> <p>Students will learn linkage types, pulleys, levers and simple cams. Students will then design and make a linkage toy.</p>	<p>Students will gain knowledge of healthy eating guidelines and the ability to evaluate food products. Students will develop a knowledge of seasonal fruit and vegetables, Eatwell Guide and the 8 tips for healthy eating. They will use their knowledge to plan and prepare a range of fruit and vegetable based dishes</p>	<p>Students will choose a country that they find interesting. Students will research its cuisine, geography, climate, agriculture, religion and social culture. Plan and prepare dishes which reflects the chosen country. Compare and contrast another country from the chosen.</p>	<p>Students will learn about the importance of 5 a day and ways to incorporate fruit and vegetables into our diet. Students will study vegetarianism and plan/make dishes to meet nutritional needs - considering meat alternatives.</p>	<p>Students will learn about the importance of modifying our diet to lower the fat, sugar and salt content and raising the fibre content. This will be achieved through experimental practical work. Students will study the needs of an astronaut in space and plan/make dishes to meet their nutritional needs - considering food preparation techniques, micro gravity and suitable packaging.</p>



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<p>Skills</p> <p><i>Procedural Knowledge – 'Know How'</i></p>	<p>Safe workshop practice.</p> <p>Introduction to more advanced techniques and processes.</p> <p>Know how to finish their final outcomes to an exceptional standard.</p> <p>Improve their ability on how to present design work and how to act on the feedback of others to further their own design ideas.</p>	<p>They will develop their understanding of designing and making and expand their graphics skills. They will use a range of pop up techniques / mechanisms, graphic tools, font designs and images as part of their design.</p>	<p>CAD - Understand how to use 2D design to produce their final idea .</p> <p>They will plot and program the laser cutter , understand how it works and how it and other CAM machines have influenced the design and manufacturing industries.</p>	<p>Research skills to compile 'case studies'.</p> <p>Students will learn how to apply knowledge of linkages to 3D outcomes using card and split pins.</p> <p>Students will learn how to calculate mechanical advantage of levers and pulleys.</p>	<p>The project gives opportunities to develop new practical skills. It gives students opportunities to apply healthy eating guidelines to dishes, modify recipes, plan method of working and evaluate the dishes they prepare</p>	<p>The focus of the project is to develop practical skills, research skills and presentation skills. This project gives students an opportunity to choose their own recipes</p>	<p>The focus of the project is to develop practical skills, research skills and presentation skills. This project gives students an opportunity to choose their own recipes</p> <p>In addition to basic skills: students have the opportunity to display a range of skills according to the dishes they choose</p> <p>Heat transfer: baking, boiling, frying</p>	<p>The focus of the project is to develop practical skills, research skills and presentation skills. This project gives students an opportunity to choose their own recipes</p> <p>In addition to basic skills: the whisking method, Students have the opportunity to display a range of skills according to the dishes they choose</p> <p>Heat transfer: baking.</p>
<p>Key Questions</p>	<p>Why do we use different joints for different jobs.</p> <p>What is the correct tool that we need for the different processes?</p>	<p>Formal questioning is used throughout the lesson which is addressed to the whole class, or an individual. What are the rules to create successful pop card/book</p>	<p>What is CAD/CAM?</p> <p>What impact has CAD/CAM had on the UK manufacturing industries since 1960's and onward.</p>	<p>What is the strongest 2D shape and how do we use it?</p> <p>Why and how are linkages/pulleys/levers used in real life to solve real problems?</p>	<p>What are the advantages of using fruit and vegetables that are in season?</p> <p>Why do we have healthy eating guidelines? How do help?</p>	<p>Comparing and contrasting foods eaten in two countries, how is their food different? how is it the same?</p>	<p>Which meat alternatives provide the nutrients vegetarians may lack</p> <p>Compare and contrast the benefits of a meat free diet.</p>	<p>How is food packaged to eat in space?</p> <p>How do you eat in microgravity?</p> <p>Which nutrients do astronauts need especially?</p>



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	How do we hold and use the mallet and chisel safely and effectively.		How are CAM machines useful on board a space station	What are the most successful pieces of architecture and why?				
Assesment	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical Piece).	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical Piece).	initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical Piece).	initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation (final design and practical piece).	Knowledge gained, making skills demonstrated and the ability to evaluate their dishes	Knowledge gained, making skills demonstrated and the presentation of findings	Knowledge gained, making skills demonstrated and ability to evaluate idea against planned criteria	Knowledge gained, making skills demonstrated and ability to evaluate idea against planned criteria
Literacy/Numeracy/SMSC/Character	Marking out the lap joint. How to annotate ideas in a D&T context. Confidence in the workshop and demonstrating the process to the class.	Marking out techniques, the use of templates and accuracy. How to annotate ideas in a D&T	Orthographic/Plan View drawings. 2D design, vector based program which relies on understanding coordinates and how to navigate an X & Y axis system. How has CAD/CAM impacted the UK manufacturing sector in the last 50 years? (increase in unemployment)	Writing case studies. Calculating mechanical advantage of levers and pulleys. Opportunities for team-work and whole class games. Discussion around famous architects and the success of women and BAME architects highlighted.	Use of descriptive words when evaluating Writing time plans Weighing and measuring ingredients Developing confidence and independence when carrying out planning practical tasks	Writing time plans Weighing and measuring ingredients Writing presentation slides Developing confidence independence when planning, carrying out practical tasks and presenting project	Writing recipes. Weighing and measuring ingredients. Recycling to avoid waste. Fairtrade. Soil Association Organic Standard. STEM - Quorn - its manufacture and uses. Vegetarianism - tolerance.	Writing recipes. Weighing and measuring ingredients. Recycling to avoid waste. Modifying diets for health STEM - Food preparation techniques for eating in micro gravity Nutritional needs in micro gravity



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Curriculum Map Year 7, 8 and 9

Subject: Design and Technology

Year group: Year 9

	Light 'em up	design it, make it and sell it!	Bring on the noise	Save the factory	Take the rise	Skills 4 all	Nutritious Meals	Healthier Diets
<p>Content</p> <p><i>Declarative Knowledge – 'Know What'</i></p>	<p>Understand materials and their working properties and how we can use them to produce high level outcomes.</p> <p>How to develop design ideas in light of ongoing research and feedback.</p> <p>Know how to produce a high level outcome which is fit for a given purpose.</p> <p>Gain knowledge on electronics, their uses and how to read a circuit diagram.</p>	<p>Pupils will learn how to create logos, packaging and advertising material using the software Photoshop.</p> <p>Understanding target market and product research.</p>	<p>Understand materials and their working properties and how we can use them to produce high level outcomes.</p> <p>How to develop design ideas in light of ongoing research and feedback.</p> <p>Know how to produce a high level outcome which is fit for a given purpose.</p> <p>Gain knowledge on electronics, their uses and how to read a circuit diagram.</p>	<p>Understand how to work to a brief and addressing the needs of a client.</p> <p>Understand the various research methods designers use to investigate and research their chosen brief.</p> <p>How to produce high level design work and mastery level annotations.</p> <p>Understand how and why plastics are used and what we need to consider in the products lifecycle especially at the end of the products use.</p>	<p>The focus of this project is to develop practical skills; making bread and pasta dough, shaping and finishing a dough and test for readiness.</p> <p>Students will develop knowledge and understanding of current nutritional guidance and apply this knowledge to modify recipes.</p>	<p>The focus of the project is to develop high level practical skills. Students will prepare shortcrust, choux and flaky pastry dishes demonstrating a range of finishing techniques.</p> <p>Following research, students will use their knowledge of healthy eating to modify recipes to select and make 'healthier' pastry dishes</p>	<p>The focus of this project is to develop knowledge and understanding of nutrition and how to achieve a balanced diet. Students make a range of skilful and nutritious savoury dishes and use a range of sensory analysis techniques to evaluate them. They use this knowledge to modify and develop the dishes, suggesting ways to incorporate the dish into a complete nutritious meal.</p>	<p>The focus of this project is to develop knowledge and understanding of healthy eating guidelines and how to achieve a healthier diet. Students use knowledge about how to lower fat, sugar and salt and how to raise fibre to modify and develop dishes. They select, plan, make and evaluate dishes which would meet these healthier eating goals.</p>



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<p>Skills</p> <p><i>Procedural Knowledge – ‘Know How’</i></p>	<p>How to plan out an effective practical and use materials efficiently.</p> <p>Know how to solder safely and competently to produce a working circuit.</p> <p>Know how to design for a particular target audience.</p> <p>How to test materials to find out their working properties and apply this to their practical outcome.</p>	<p>>learn to use Adobe Photoshop to create logos and advertising materials.</p> <p>>3D modelling</p> <p>>Knowledge & Understanding of rules of good logo & Packaging design and its importance.</p>	<p>How to plan out an effective practical and use materials efficiently.</p> <p>Know how to solder safely and competently to produce a working circuit.</p> <p>Know how to design for a particular target audience.</p> <p>How to test materials to find out their working properties and apply this to their practical outcome.</p>	<p>How to plan out an effective practical and use materials efficiently.</p> <p>How to use the laser cutter to achieve high level and detailed outcomes.</p> <p>Know how to design for a particular target audience.</p> <p>How to investigate the work of others and use this research to inform future ideas.</p>	<p>Students will develop a range of making skills - weighing and measuring, shaping and finishing a dough, use of pasta machine, use of oven and hob, make a dough, test for readiness, judge and manipulate sensory properties</p> <p>Students will modify recipes following current healthy eating guidelines</p>	<p>Students will have the opportunity to develop and demonstrate a range of pastry making skills</p> <p>Students will use their knowledge of healthy eating to modify recipes to increase fibre and reduce fat content.</p>	<p>The focus of the project is to develop practical skills, evaluation skills and presentation skills.</p> <p>Understanding and using nutrition and traffic light labels.</p> <p>This project gives students an opportunity to choose their own recipes</p> <p>In addition to basic skills: meat sauce, ragu, roux, enrobing, shaping Students have the opportunity to display a range of skills according to the dishes they choose</p> <p>Heat transfer: baking, boiling, dry frying</p>	<p>The focus of the project is to develop practical skills, research skills and presentation skills.</p> <p>This project gives students an opportunity to choose their own recipes</p> <p>In addition to basic skills: modified shortcrust pastry, students have the opportunity to display a range of skills according to the dishes they choose</p> <p>Heat transfer: baking</p>
<p>Key Questions</p>	<p>What is the difference between toughness and hardness?</p>	<p>Questions related to target market, importance of font, colour choices.</p>	<p>What happens to a circuit if the resistors uses are too high/low?</p>	<p>What are the dangers of 3d printing?</p> <p>With advancements in</p>	<p>Why is dietary fibre important in the diet?</p> <p>Identify ways to increase fibre</p>	<p>What conditions must be in place to product a good quality pastry?</p>	<p>Why are the scientific processes - coagulation and gelatinisation</p>	<p>What are the links between our modern lifestyle/food consumption in</p>



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Sandringham School
'Everybody can be Somebody'

	What is the difference between ductility and flexibility.	What are the rules to create successful packaging/ advertising?	What is a capacitor and what role does it play in a speaker.	3d printing leading to organs being made, will we one day be able to 3d print a person? Is yes, should we? How can 3D printed shelters benefit those in developing countries or disaster hit areas.	content in recipes? What conditions does yeast require in bread making?		integral to food preparation? Why is a balanced diet unique to an individual - why do our needs change over our lifetime?	this country and illness/disease? How far can you modify a recipe before it becomes unacceptable and loses recipe balance?
Assessment	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation & final design	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation & final design	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation & final design	Initial research (know) Design ideas (plan) Practical Outcome (make) Overall evaluation & final design	Knowledge gained, making skills demonstrated, the ability to evaluate against planned criteria.	Knowledge gained, making skills demonstrated, the ability to evaluate against planned criteria.	Knowledge gained, making skills demonstrated and ability to evaluate idea against planned criteria	Knowledge gained, making skills demonstrated and ability to evaluate idea against planned criteria
Literacy/ Numeracy/ SMSC/ Character	Calculating loads and the tensile strength of material. Making the best use of material and avoiding wastage. Annotating ideas.	Develop their chosen ideas through peer evaluation and design development Social: Aware of design preference for a chosen market. maths: 3D modelling, dimensioning	Calculate the value of resistors. Producing ideas that show respect to others views and beliefs.	Tessellation Annotating ideas. Calculating area and volume. Calculating filament used and overall cost.	Writing time plans Weighing and measuring ingredients Modifying recipes to meet healthy eating guidelines	Writing time plans Weighing and measuring ingredients Modifying recipes to meet healthy eating guidelines	Writing recipes. Weighing and measuring ingredients. Recycling to avoid waste. STEM - the coagulation of protein and gelatinisation of starch	Writing recipes. Weighing and measuring ingredients. Recycling to avoid waste. STEM - modifying a recipe to meet healthy eating goals whilst



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		IT: Use Adobe Photoshop			Developing confidence and independence whilst completing tasks	Developing confidence and independence whilst completing tasks		maintaining recipe balance
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