# 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 | Biomimicry | Food skills 1 | Food Skills 2 | Perfect Picnics |
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| **Content**<br><br>*Declarative Knowledge – 'Know What'* | Students will understand how to work safely and competently in the workshop.<br><br>Be able to use a range of tools, equipment and machines safely and competently.<br><br>To understand the design process as well as what is required to produce high level design work. | Students will understand properties of textiles and electronic components<br><br>Students will learn about different manufacturing techniques | The project allows pupils to understand basic principles of net design, fonts and colour styles.<br><br>Students will develop their understanding of designing and making and expand their practical skills in the use of paper, card and other graphic equipment. | Understand how the natural world impacts the everyday products we use.<br><br>How Biomimicry is shaping the future of D&T.<br><br>Be able to produce creative ideas that are inspired by nature's shape and form.<br><br>Understand the design process and how we use feedback from a 3rd party to develop and improve our ideas. | Students will develop their basic practical skills. Students will use a range of equipment and demonstrate methods of heat transfer. Students will learn about the importance of weighing and measuring and carrying out sensory analysis as part of the evaluation. Students will use the oven, hob and microwave safely and hygienically. | 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. Students will use a range of equipment and demonstrate methods of heat transfer. | 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. |

# Curriculum Map Year 7, 8 and 9

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| **Skills**<br><br>*Procedural Knowledge – 'Know How'* | Safe workshop practice.<br><br>Introduction to tool and machine use.<br><br>Know how to mark out work accurately and effectively.<br><br>Know how to present design work and how to act on the feedback of others to further their own design ideas. | students will develop manufacturing techniques relating to textiles and electronic circuits<br><br>Students will develop the skills to communicate design ideas | >Health and safety with a particular focus on graphics equipment.<br>>Marking out techniques, the use of templates and accuracy.<br>>Take target market views about aesthetic and technical issues into account as they respond to briefs.<br>>Students will develop the skills to communicate design ideas. | How to use primary and secondary sources of research.<br><br>How to select information and apply it to your own work.<br><br>How to present your initial ideas.<br><br>How to use the feedback of others to inform your ideas and help develop them further. | In addition to the basic skills - creaming method, all in one method,, peeling, slicing dicing<br><br>Heat transfer: baking, boiling, use of the microwave | In addition to the basic skills - peeling, slicing, dicin, making a yeast dough, how to knead, roll, and shape a doug, rubbing in method<br><br>Heat transfer: baking, boiling | In addition to basic skills -peeling, slicing, dicing students will learn: rolling and shaping pastry, portion size,<br><br>Heat transfer: baking, boiling, frying |
| **Key Questions** | How can we effectively join different materials.<br><br>What is the correct tool that we need for the different processes? | How does an electronic circuit and components work?<br><br>What is the difference between decorative and joining techniques? | Why is Logo important?<br><br>What are the basic rules to create successful packaging? | What is biomimicry?<br><br>Why do designers look to nature for inspiration?<br><br>What is the strongest naturally occuring structure found in nature and why? | Why is it important to weigh out ingredients accurately?<br><br>How does a microwave cook food? | How does yeast work to create a risen dough?<br><br>Why do need to use strong flour when making a bread dough? | Which packaging materials are suitable to contain and preserve a picnic item during transport?<br><br>Why are portion size and fragility of ingredients important factors when selecting recipes? |
| **Assessment** | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make) | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make) | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make) | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make) | Knowledge gained, making skills demonstrated<br>Ability to evaluate products | Knowledge gained, making skills demonstrated.<br>Ability to evaluate products | Knowledge gained, making skills demonstrated and ability to evaluate idea against planned criteria |

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| | Overall evaluation (final design and practical Piece). | Overall evaluation (final design and practical Piece). | Overall evaluation (final design and practical Piece). | Overall evaluation (final design and practical Piece). | | | |
| **Literacy/ Numeracy/** | Marking out of the finger joint (x/y=z)<br><br>How to annotate ideas in a D&T context. | Calculate the value of resistors. | Marking out techniques, the use of templates and accuracy.<br><br>How to annotate ideas in a D&T context. | Annotations<br><br>Confidence - Presenting to the class. | Use of descriptive words when evaluating<br><br>Weighing and measuring ingredients<br><br>Developing confidence and independence when carrying out planning practical tasks | Use of descriptive words when evaluating<br><br>Weighing and measuring ingredients<br><br>Developing confidence and independence when carrying out planning practical tasks | Writing recipes.<br><br>Weighing and measuring ingredients.<br><br>Recycling to avoid waste.<br><br>Developing the confidence to select their own recipes to meet set criteria. |
| **SMSC/ Character** | Ethical sourcing of materials and how to avoid wastage.<br><br>What does the FSC mark mean and how does it impact the production of timber based products.<br><br>Appropriate imagery in design and how to avoid offending different cultures i.e. use | Ethical sourcing of materials and how to avoid wastage.<br><br>Inclusive design, how to avoid offending people and turning way key target audiences .<br><br>Design for a cause - Students select a cause and design a series of products for it as well as producing a presentation for that cause and | What makes London unique compared to other cities across the globe.<br><br>What are common british themes and values.<br><br>What is fairtrade and why is it important in the manufacture of products. | How does nature shape and form influence the design of the world we live in.<br><br>How have other countries used nature shape and form in the design of their buildings and infrastructure i.e: The bullet train, Sydney opera house, 2012 Olympic cauldron | Developing confidence and independence when carrying out planning practical tasks | Developing confidence and independence when carrying out planning practical tasks | Recycling to avoid waste.<br><br>Developing the confidence to select their own recipes to meet set criteria. |

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| | **of colours, shape and texts and their meanings.**<br><br>**Health and safety - How to keep yourself and each other safe in the workshop** | **present it to the class.** | | | | | |

# Curriculum Map Year 7, 8 and 9

**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 | The Cube | Pop-up Books | Phone Stand | Smart Structures | Fruit & Veg in the kitchen | Food around the world | Healthy eating - 5 a day | Healthier choices for a healthier life |
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| **Content**<br><br>*Declarative Knowledge – 'Know What'* | Students will continue to understand how to work safely and competently in the workshop.<br><br>Students will continue to build their knowledge of how to use a range of tools, equipment and machines safely and competently.<br><br>To understand the design process as well as what is required to produce high level design work. | properties and processes relating to manufactured boards and metal.<br><br>Practical skills to manufacture different joints<br><br>Design movements and how styles can influence design ideas | 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. | Students will be introduced to CAD and CAM by using 2D design and the laser cutter to produce a phone/device stand.<br><br>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.<br><br>To continue to develop their design skills and work on the Isometric drawing to | | 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 | 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. | 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. | 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. |

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| | | | | create complex shapes and designs. | | | | | |
| **Skills**<br><br>*Procedural Knowledge – 'Know How'* | Safe workshop practice.<br><br>Introduction to more advanced techniques and processes.<br><br>Know how to finish their final outcomes to an exceptional standard.<br><br>Improve their ability on how to present design work and how to act on the feedback of others to further their own design ideas. | technical marking out cutting joints<br><br>Research into Pewter casting process and presenting research findings. | 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. | CAD - Understand how to use 2D design to produce their final idea .<br><br>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. | | 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 | The focus of the project is to develop practical skills, research skills and presentation skills.<br>This project gives students an opportunity to choose their own recipes | The focus of the project is to develop practical skills, research skills and presentation skills.<br>This project gives students an opportunity to choose their own recipes<br>In addition to basic skills: students have the opportunity to display a range of skills according to the dishes they choose<br>Heat transfer: baking, boiling, frying | The focus of the project is to develop practical skills, research skills and presentation skills.<br>This project gives students an opportunity to choose their own recipes<br>In addition to basic skills: the whisking method, Students have the opportunity to display a range of skills according to the dishes they choose<br>Heat transfer: baking. |
| **Key Questions** | Why do we use different joints for different jobs.<br><br>What is the correct tool that we need for the different processes? | Why do designers use work of others for inspiration?<br><br>Why is it important to measure and | Formal questioning is used throughout the lesson which is addressed to the whole class, or an individual. What are the rules to create | What is CAD/CAM?<br><br>What impact has CAD/CAM had on the UK manufacturing industries | | What are the advantages of using fruit and vegetables that are in season?<br><br>Why do we have healthy eating | Comparing and contrasting foods eaten in two countries, how is their food different? how is it the same? | Which meat alternatives provide the nutrients vegetarians may lack<br><br>Compare and contrast the | How is food packaged to eat in space?<br><br>How do you eat in microgravity? |

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| | How do we hold and use the mallet and chisel safely and effectively. | mark out joints correctly? | successful pop card/book | since 1960's and onward.<br><br>How are CAM machines useful on board a space station | | guidelines? How do help? | | benefits of a meat free diet. | Which nutrients do astronauts need especially? |
| **Assessment** | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>Overall evaluation (final design and practical Piece). | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>Overall evaluation (final design and practical Piece). | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>Overall evaluation (final design and practical Piece). | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>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.<br><br>How to annotate ideas in a D&T context.<br><br>Confidence in the workshop and demonstrating the process to the class. | Marking and measuring finger joints<br><br>Confidence in the workshop and demonstrating the process to the class.<br><br>Extended writing piece into the process of pewter casting, | Marking out techniques, the use of templates and accuracy.<br><br>How to annotate ideas in a D&T | Orthographic/ Plan View drawings.<br><br>2D design, vector based program which relies on understanding coordinates and how to navigate an X & Y axis system. | | Use of descriptive words when evaluating<br><br>Writing time plans<br><br>Weighing and measuring ingredients<br>Developing confidence and independence when carrying | Writing time plans<br><br>Weighing and measuring ingredients<br><br>Writing presentation slides<br><br>Developing confidence independence when planning, carrying out | Writing recipes.<br><br>Weighing and measuring ingredients.<br><br>Recycling to avoid waste.<br><br>Fairtrade. Soil Association Organic Standard.<br><br>STEM - Quorn - its | Writing recipes.<br><br>Weighing and measuring ingredients.<br><br>Recycling to avoid waste.<br><br>Modifying diets for health<br><br>STEM - Food preparation techniques for |

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| | | developing correct technical vocabulary. | | How has CAD/CAM impacted the UK manufacturing sector in the last 50 years? (increase in unemployment ) | | out planning practical tasks | practical tasks and presenting project | manufacture and uses.<br><br>Vegetarianism - tolerance. Sustainability. Environmental factors - Carbon footprint - land used for animal vs arable | eating in micro gravity<br><br>Nutritional needs in micro gravity |

# Curriculum Map Year 7, 8 and 9

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**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 |
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| **Content**<br><br>*Declarative Knowledge – 'Know What'* | Understand materials and their working properties and how we can use them to produce high level outcomes.<br><br>How to develop design ideas in light of ongoing research and feedback.<br><br>Know how to produce a high level outcome which is fit for a given purpose.<br><br>Gain knowledge on electronics, their uses and how to read a circuit diagram. | Pupils will learn how to create logos, packaging and advertising material using the software Photoshop.<br><br>Understanding target market and product research. | Understand materials and their working properties and how we can use them to produce high level outcomes.<br><br>How to develop design ideas in light of ongoing research and feedback.<br><br>Know how to produce a high level outcome which is fit for a given purpose.<br><br>Gain knowledge on electronics, their uses and how to read a circuit diagram. | Understand how to work to a brief and addressing the needs of a client.<br><br>Understand the various research methods designers use to investigate and research their chosen brief.<br><br>How to produce high level design work and mastery level annotations.<br><br>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. | The focus of this project is to develop practical skills; making bread and pasta dough, shaping and finishing a dough and test for readiness.<br><br>Students will develop knowledge and understanding of current nutritional guidance and apply this knowledge to modify recipes. | 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.<br><br>Following research, students will use their knowledge of healthy eating to modify recipes to select and make 'healthier' pastry dishes | 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. | 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. |

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| **Skills**<br><br>*Procedural Knowledge – 'Know How'* | **How to plan out an effective practical and use materials efficiently.**<br><br>**Know how to solder safely and competently to produce a working circuit.**<br><br>**Know how to design for a particular target audience.**<br><br>**How to test materials to find out their working properties and apply this to their practical outcome.** | **>3D modelling >Knowledge & Understanding of rules of good logo & Packaging design and its importance.** | **How to plan out an effective practical and use materials efficiently.**<br><br>**Know how to solder safely and competently to produce a working circuit.**<br><br>**Know how to design for a particular target audience.**<br><br>**How to test materials to find out their working properties and apply this to their practical outcome.** | **How to plan out an effective practical and use materials efficiently.**<br><br>**How to use the laser cutter to achieve high level and detailed outcomes.**<br><br>**Know how to design for a particular target audience.**<br><br>**How to investigate the work of others and use this research to inform future ideas.** | **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**<br><br>**Students will modify recipes following current healthy eating guidelines** | **Students will have the opportunity to develop and demonstrate a range of pastry making skills**<br><br>**Students will use their knowledge of healthy eating to modify recipes to increase fibre and reduce fat content.** | **The focus of the project is to develop practical skills, evaluation skills and presentation skills.**<br>**Understanding and using nutrition and traffic light labels.**<br>**This project gives students an opportunity to choose their own recipes**<br>**In addition to basic skills: meat sauce, ragu, roux, enrobing, shaping**<br>**Students have the opportunity to display a range of skills according to the dishes they choose**<br>**Heat transfer: baking, boiling, dry frying** | **The focus of the project is to develop practical skills, research skills and presentation skills.**<br>**This project gives students an opportunity to choose their own recipes**<br>**In addition to basic skills: modified shortcrust pastry, students have the opportunity to display a range of skills according to the dishes they choose**<br>**Heat transfer: baking** |

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| **Key Questions** | What is the difference between toughness and hardness?<br><br>What is the difference between ductility and flexibility. | Questions related to target market, importance of font, colour choices.<br>What are the rules to create successful packaging/ advertising? | What happens to a circuit if the resistors uses are too high/low?<br><br>What is a capacitor and what role does it play in a speaker. | What are the dangers of 3d printing?<br><br>With advancements in 3d printing leading to organs being made, will we one day be able to 3d print a person? Is yes, should we?<br><br>How can 3D printed shelters benefit those in developing countries or disaster hit areas. | Why is dietary fibre important in the diet?<br><br>Identify ways to increase fibre content in recipes?<br><br>What conditions does yeast require in bread making? | What conditions must be in place to product a good quality pastry? | Why are the scientific processes - coagulation and gelatinisation integral to food preparation?<br><br>Why is a balanced diet unique to an individual - why do our needs change over our lifetime? | What are the links between our modern lifestyle/food consumption in this country and illness/disease?<br><br>How far can you modify a recipe before it becomes unacceptable and loses recipe balance? |
| **Assessment** | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>Overall evaluation & final design | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>Overall evaluation & final design | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>Overall evaluation & final design | Initial research (know)<br>Design ideas (plan)<br>Practical Outcome (make)<br>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.<br><br>Making the best use of material | Develop their chosen ideas through peer evaluation and design development<br>Social: Aware of design preference | Calculate the value of resistors.<br><br>Producing ideas that show respect to others views and beliefs. | Tessellation<br><br>Annotating ideas.<br><br>Calculating area and volume. | Writing time plans<br><br>Weighing and measuring ingredients | Writing time plans<br><br>Weighing and measuring ingredients | Writing recipes.<br><br>Weighing and measuring ingredients.<br><br>Recycling to avoid waste. | Writing recipes.<br><br>Weighing and measuring ingredients.<br><br>Recycling to avoid waste. |

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| | and avoiding wastage.<br><br>Annotating ideas. | for a chosen market.<br>maths: 3D modelling, dimensioning | | Calculating filament used and overall cost. | Modifying recipes to meet healthy eating guidelines<br><br>Developing confidence and independence whilst completing tasks | Modifying recipes to meet healthy eating guidelines<br><br>Developing confidence and independence whilst completing tasks | STEM - the coagulation of protein and gelatinisation of starch | STEM - modifying a recipe to meet healthy eating goals whilst maintaining recipe balance |