

## St. Cuthbert's Curriculum Mapping: Design and Technology


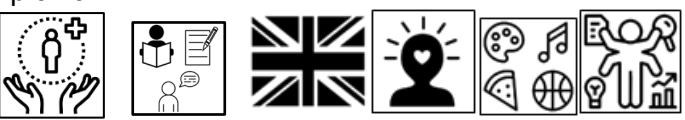
### Whole school Vision:

The curriculum at St Cuthbert's provides ambitious educational opportunities for all members of our community. The curriculum equips our students with the knowledge, skills and personal characteristics they need to flourish as literate, articulate, global citizens, who fulfil our Catholic Mission to bring about the Common Good.


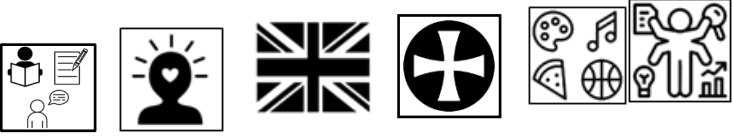
### Specialisms Vision:

The Specialisms at St Cuthbert's offer an enriching experience where individual passions are discovered and nurtured within a culture of excellence.

**KS3 curriculum is strategically sequenced and contains knowledge and skills students to achieve positive outcomes at Key Stage 3**

		<b>D&amp;T Weeks 1-14</b>	<b>Food Weeks 1-14</b>
<b>Year 7</b>	<b>Theme</b>	<p>Introduction to materials: Timbers, plastics and metal. Health and safety in the workshop.</p> 	<p>Design and make a snack product suitable to serve at a seasonal picnic.</p> 
	<b>Knowledge / skills</b>	<p><b>Knowledge:</b> Learning about different materials and their properties (Timber and manufactured board and polymers) Impact on the environment</p> <p>Pupils to learn the rules of Health and safety in the workshop.</p> <p>Pupils learn about Manufacturing processes and using: hand saws, pillar drill, sanding disc, Quality control, finishing techniques.</p> <p><b>Skills:</b> Identify types of timber, manufactured board and polymers. Communicate ideas through 3D annotated sketches Discuss the impact of using timber materials on the environment. Use a range of hand tools and machinery, safely and accurately</p> <p><b>Specific skills:</b> Pupils will embark on learning a range of practical skills used to permanently join and form materials.</p>	<p><b>Knowledge:</b> Pupils will be learning about different ingredients, cooking methods and the food safety principles of buying and storing high risk foods and other ingredients associated with food suitable for a picnic.</p> <p>Pupils will learn about the functional and chemical properties of ingredients such as protein coagulation and citric acid. Pupils will learn about how heat is transferred to cook foods.</p> <p>Pupils learn what sensory testing is and how it is carried out to test the sensory qualities of foods. Pupils will also learn how to taste and season food during the cooking process.</p> <p>Pupils will learn about seasonality, including the advantages and disadvantages of choosing seasonal fruits and vegetables.</p> <p><b>Skills:</b> Pupils will apply the knowledge and understanding of ingredients when producing a range of dishes suitable for the picnic.</p>



	Pupils will develop their knowledge of the wider world by investigating materials and their uses and recognise how these impact on our lives globally.	Pupils will evaluate food products using sensory testing and suggest ways to improve.
<b>Rationale</b>	<p><b>Links to Previous Learning</b></p> <p>In the first unit pupils learning builds upon the National Curriculum Key Stage 1 &amp; 2 requirements. National Curriculum Key Stage 1 &amp; 2 states pupils will have been taught knowledge and skills from primary skills where they will have used a basic range of skills to perform practical tasks. They will have built structures and investigated how to make them stronger and had the opportunity to select from a range of materials and components. The learning in this unit leverages more sophisticated resources and specialised equipment. Pupils will also draw upon the knowledge from other subjects such as Maths, Science and Art.</p> <p><b>Links to Future Learning</b></p> <p>Pupils embark on learning a range of transferable practical skills and learn the health and safety rules of a working environment. Knowledge of materials and their uses gives the learners insight into the iterative design process and global manufacturing. These skills are an imperative foundation to the sequence of learning as pupils progress through the curriculum</p> <p><b>Why</b></p> <p>The learning in Autumn Term Yr 7 equips students with a sound basis of practical/workshop skills and knowledge of materials and their properties to experience success throughout KS3; it also provides a platform for future learning at KS4.</p>	<p><b>Links to previous learning</b></p> <p>In Yr 7 Autumn Term the students learning builds upon the National Curriculum Key Stage 1 and 2 statutory requirements. Pupils will become more competent in a range of cooking techniques selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients as the NC sets out.</p> <p>This will also enable pupils to draw on skills from primary school such as maths in weighing, measuring of ingredients, English when reading instruction sheets and Science with the functions of ingredients such as coagulation.</p> <p><b>Links to future learning</b></p> <p>This unit also allows the introduction of current food issues as pupils will develop their knowledge of the wider world by investigating seasonality and using locally sourced foods and how this can support local communities and the wider world through the reduction of pollution which can help the environment. The skills established will provide a platform enable pupils to further develop recipes, leading to more challenge in relation to practical tasks and opportunities to apply these principles to how the foods we eat impact on nutrition and health.</p> <p><b>Why</b></p> <p>The learning in Autumn Term Yr 7 equips students with a sound basis of practical skills and knowledge of how to combine ingredients to experience success throughout KS3; it also provides a platform for future learning at KS4.</p>
	<b>D&amp;T</b> <b>Weeks 15-21</b>	<b>Food</b> <b>Weeks 15-21</b>

	<p><b>Theme</b></p> <p>Understand the use of materials and the performance of structural elements to achieve functioning solutions</p> 	<p>Nutrition and the Eat well Guide</p> 
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 7</p>	<p><b>Knowledge / skills</b></p> <p><b>Knowledge:</b>  Learning about the functions and properties of metals.</p> <ul style="list-style-type: none"> <li>• Identify types of metals and alloys.</li> <li>• Discuss the impact of using metal materials on the environment.</li> <li>• Use a range of hand tools and machinery, safely and accurately.</li> </ul> <p><b>Skills:</b>  Pupils will apply previously learnt health and safety knowledge when using materials to make a range of products in a practical context. Pupils are introduced to methods of CAD CAM used to shape acrylic.</p> <p>Learners will develop independence, confidence and awareness of working with materials safely and accurately in a manufacturing</p>	<p><b>Knowledge:</b>  Use research and exploration to identify and understand the names, function and food sources for the 3 macro nutrients and a range of micro nutrients (vitamins and minerals). Also the special dietary needs of target groups and the impact this has on the amount of nutrients required. Pupils will also learn the function and food sources for fibre and how a lack of fibre can impact on our health.</p> <p>Pupils will also learn about the principles of a balanced diet. Pupils will learn how The Eatwell Guide can be used to help people to follow a balanced diet and which food groups should be eaten infrequently and those that should make up a large part of our daily diet.</p> <p>Pupils will learn about cereal commodities and how they can be used to increase the nutritional value of recipes.</p> <p>Pupils will continue to develop their knowledge of how to flavour and season foods using marinades, spices and herbs.</p> <p>Pupils will continue their learning journey on the functional and chemical properties of foods looking at ‘shortening’ through the use of the ‘rubbing in’ method and emulsions through salad dressings and mayonnaise.</p> <p>Pupils will learn how to carry out a sensory test focusing on taste, texture, appearance and aroma and how this can be used to improve practical outcomes.</p> <p><b>Skills:</b>  Pupils will apply previously learnt personal hygiene and food safety rules in a kitchen setting, including the key temperatures for food</p>


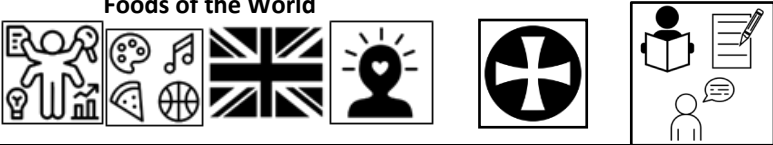
			<p>safety. They will use their knowledge and understanding to adapt a recipe to improve the nutritional content for different target groups. They will use a range of ingredients, equipment and cooking methods, safely and accurately to produce a range of sweet and savoury meals/dishes.</p> <p>Pupils will be able to identify and explain how the Eatwell guide can be used as an informative tool to ensure people follow a balanced diet and how that can impact on health.</p>
<b>Rationale</b>	<p><b>Links to Previous Learning</b> Building on their prior learning of materials and their properties, developing further breadth of skills and techniques with a range of materials. Skills and processes experienced in this unit are metals, natural timber and polymers. At this point learners will have been introduced to all of the material categories set out in the NC and will have knowledge and practical experience of each.</p> <p><b>Links to Future Learning</b> Future learning will link in with expanding their knowledge of the iterative design process by being broken down in KS3 into sequenced teacher led design process stages. Moving onto a more independent approach once these foundation skills have been embedded.</p> <p><b>Why</b> The learning in Autumn Term Yr 7 equips students with a sound basis of practical/workshop skills and knowledge of a new materials and their properties to experience success throughout KS3; it also provides a platform for future learning at KS4.</p>	<p><b>Links to previous learning</b> Pupils will build on knowledge and skills and will now have become competent in a range of cooking techniques and methods, using awareness of taste, texture and smell to decide how to season dishes and combine ingredients and adapting recipes.</p> <p>Pupils have established more knowledge on heat transfer, how cooking affects the sensory properties of foods and functional and chemical properties of ingredients.</p> <p><b>Links to future learning</b> This learning leads to the application of the knowledge and skills in the next topic where students have to adapt a recipe with food choice factors in mind.</p> <p><b>Why</b> The learning in Autumn Term Yr. 7 equips students with a sound basis of skills/techniques and knowledge of nutrients and how to eat healthily in order to experience success throughout KS3; it also provides a platform for future learning at KS4.</p>	

		<b>D&amp;T</b> Weeks 1-14	<b>Food</b> Weeks 1-14
Year 8	Theme		




	Use techniques and processes to demonstrate the production of a clock design with a cultural theme.	Nutritional needs of different groups of people. Design and make a balanced dish for a specific dietary need.
<b>Knowledge / skills</b>	<p><b>Knowledge</b> Building on knowledge from year 7 pupils will demonstrate practical skills more independently and demonstrate knowledge of structural elements relating to the design. Pupils will create a design specification with restrictions in mind for a chosen client. Pupils will analyse their ideas to aid the development of designs. Pupils use practical skills to model and develop their final idea.</p> <p>Pupils test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users.</p> <p><b>Skills:</b> Pupils will further develop their range of practical skills; Shaping and finishing wood and shaping and forming plastics, methods of joining. Pupils independence and accuracy will be assessed.</p>	<p><b>Knowledge:</b> Pupils will learn about factors that can affect our energy balance. Pupils will learn why different target groups have different nutritional needs and apply this to adapting a recipe. Pupils will learn about nutritional analysis and why it is important for different dietary needs and investigate how this is used on Food labelling. Using research and exploration pupils will investigate and learn how dietary choices such as vegetarianism and veganism and how it can impact on nutritional needs.</p> <p>Pupils will further develop their knowledge of nutritional knowledge of target groups other factors relating to food choice such as religion, health conditions, lifestyle choice, cost and allergens. Pupils will learn about key ingredients used as alternatives, their nutritional value and effect of the sensory appeal.</p> <p><b>Skills:</b> Pupils will adapt each practical to suit the need of a particular food choice factor: Shepherd's pie: Vegetarian Curry: Costing Mac cheese: Lactose/coeliac Meatballs: Diabetes</p> <p>Pupils will further develop their practical skills whilst using a range of ingredients, equipment and techniques. This will include the application of safety and hygiene rules to prevent cross contamination and food poisoning.</p>
<b>Rationale</b>	<p><b>Links to Previous Learning</b> Pupils have now experienced a breadth of skills and techniques in year 7 whilst investigating the properties and characteristics of materials</p>	<p><b>Links to Previous Learning</b> Pupils have used their previous knowledge on nutrition and a balanced diet and applied this to the nutritional needs of a variety of different groups of consumers. Pupils will have the opportunity to expand on</p>

		<p><b>Links to future learning</b></p> <p>Pupils will embark on the iterative design process of where they will take inspiration in order to create imaginative ideas. Building on knowledge from year 7 pupils will work more independently whilst developing and making the product with the needed of the intended user. Moving further into year 8 this unit will equip them with the further knowledge and skills and the ability to apply them in their own design response.</p> <p><b>Why</b></p> <p>Pupil now have a bank of practical knowledge to select from. Pupils have the opportunity to experience CAD/CAM in order to manufacture parts of the clock.</p>	<p>their repertoire of practical skills as more complex and challenge is offered in the recipes selected.</p> <p>Moving into year 8 pupils will broaden their knowledge and understanding of how to enjoy a healthy varied diet for themselves as well as other groups.</p> <p><b>Links to future learning</b></p> <p>The specific skills such as combining ingredients and sauce making taught in this unit of work provides pupils with further knowledge and the ability to investigate food science, such as the process of gelatinisation using an all in one starch based sauce and binding food with eggs to produce meatballs. This will enable pupils to apply their knowledge and understanding of gelatinisation and shortening to more complex dishes such as meat and potato pie in Year 9.</p> <p><b>Why</b></p> <p>The learning in first unit of food in Yr 8 equips students with a sound basis of practical skills and techniques as well as knowledge of how different life stages need to eat healthily as well as building on knowledge of the properties of ingredients in order to experience success throughout KS3; it also provides a platform for future learning at KS4.</p>
		<p><b>D&amp;T</b> <b>Weeks 15-21</b></p>	<p><b>Food</b> <b>Weeks 15-21</b></p>
<p><b>Year 8</b></p>	<p><b>Theme</b></p>	 <p>Research the design theme of Pop Art Realise a range of ideas for a Dark Activated Light in response to the theme.</p>	 <p>Functional properties of food</p>
	<p><b>Knowledge / skills</b></p>	<p>Enquiry Questions</p> <p>How do you solder a circuit safely?</p> <p>What does correct solder joint look like?</p> <p>How do you plan to make your light?</p> <p>How have you reflected the Pop Art design era?</p>	<p><b>Knowledge:</b></p> <p>Pupils will demonstrate and understand how to make a starch based sauce and the process of gelatinisation, this learning will be applied in a practical task.</p> <p>Pupils learn about how wheat is turned into flour and how flour is turned into ingredients.</p>

		<p>Demonstrate knowledge and understanding of how sources are used to generate a response that addresses specific needs and constraints of the design task.</p> <p>Pupils develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tool</p> <p>3D drawing isometric and orthographic techniques</p> <p>Construction: Wood joints, electronic circuit</p> <p>Assembling: Adhesives, drilling, circuit.</p> <p>Surface treatment: Laser etching, Painting, vinyl, decoupage.</p> <p>Pupils apply computing and use electronics to produce this product that responds to inputs and control outputs.</p> <p>Pupils will learn about how electronics can be used to embed intelligence in products that respond to inputs and control outputs.</p>	<p>Pupils will learn how different doughs are made and the dishes they are used for. Pupils will learn, demonstrate and understand the function of ingredients in bread and how bread rises using biological raising agents through the process of fermentation.</p> <p>Pupils will learn the functional and chemical properties of the ingredients and process of making shortcrust pastry.</p> <p>Pupils will learn the importance of a chemical raising agent and aeration in cake making.</p> <p><b>Skills:</b></p> <p>Pupils will develop a range of practical skills including sauce making, forming a bread dough, kneading, shaping and forming a shortcrust pastry dough, rolling, filling and shaping a dough. Pupils will also learn how quality control can be applied to dishes to improve the quality outcome of a practical dish. Pupils will also learn how to use the creaming method when making a cake and how to line and grease a cake tin correctly.</p>
	<p><b>Rationale</b></p>	<p><b>Links to Previous Learning</b></p> <p>This project combines skills previously learnt skills and techniques from year 7 combining technical knowledge of electronics to develop understand how more advanced electrical and electronic systems can be powered and used in their products.</p> <p><b>Links to Future Learning</b></p> <p>This links forward in the next stage of the curriculum in year 9, where pupils will use their depth of knowledge and apply this to the iterative design process.</p> <p><b>Why</b></p> <p>The learning from year 7 and 8 equips students with a sound basis of practical/workshop skills and knowledge of materials and their properties, this unit allows further breadth of knowledge in order to design and evaluate the success of theirs and others work.</p>	<p><b>Links to Previous Learning</b></p> <p>The practical tasks involved in this learning allow the application of previously taught skills relating to the preparation and selection of equipment and ingredients with more independence. Each practical then focuses on specific practical techniques links with food science and quality control.</p> <p><b>Links to Future Learning</b></p> <p>This learning prepares a platform for pupils in year 9 when they will develop their practical skills and the ability to follow more complex recipes; such as making a pizza which will be shaped and flavoured, as well as making a reduced sauce as part of the topping.</p> <p><b>Why</b></p> <p>The learning in this unit allows pupils to understand why we have to use certain ingredients for certain dishes and the science behind our food including the importance of chemical reactions. It also reinforces the importance of accurate weighing and measuring and application of heat.</p>

		D&T Weeks 1-14	Food Weeks 1-14
Year 9	Theme	<b>Systems and Control.</b> 	<b>Foods of the World</b> 
	Knowledge / skills	<p><b>Knowledge:</b> Pupils will learn mechanical systems used in their products enable changes in movement and force.</p> <p>Pupils will develop a specification to inform the design of innovative, functional, appealing products that respond to needs of a child's when designing and making toys. Pupils will evaluate the safety and design of existing children's toys.</p> <p><b>Skills</b> Pupils are introduced to more complex and challenging practical skills working with woods and plastics. Using tutorials for 2D Design, pupils will broaden their experience of the capabilities of CAD/CAM. Pupils will design with a specific user in mind. As well as take influence from artistic themes to design products.</p>	<p><b>Knowledge:</b> Pupils will learn how foods from many different cultures have affected our eating habits. Pupils will learn about British cuisine including traditional ingredients, dishes, eating patterns and cooking methods used. Pupils will then apply their knowledge and understanding in designing a British Pie dish. Pupils will then research and investigate International cuisine focusing on Italian and Mexican culture and how this influences their cuisine. Pupils will investigate and learn about ingredients used, cooking methods, eating patterns and how different regions can eat differently. Pupils will develop their knowledge of preparing, combining and shaping foods as well as the food science related aspects of cultural recipes, such as using acids to tenderise meat.</p> <p><b>Skills:</b> Pupils will develop a range of practical skills to increase the challenge and skill level by making a shortcrust pastry and then filling and sealing a pie with a pastry lid. Pupils will learn how to create a high quality finish on a savoury pastry pie dish. Pupils will develop their skills in bread making by forming and shaping a dough to make a pizza. Pupils will develop knife skills when preparing vegetables for a fajita filling with the focus on julienne and quality control. Pupils will learn how to tenderise meat using a marinade.</p>
	Rationale	<p>Pupils are introduced to more complex and challenging practical skills working with woods and plastics. Using tutorials for 2D Design, pupils will broaden their experience of the capabilities of CAD/CAM. Pupils will design with a specific user in mind. As well as take influence from artistic themes to design products. This unit will further develop skills in order to prepare pupils for the D&amp;T GCSE.</p>	<p><b>Links to Previous Learning</b> Pupils are shown how to develop existing practical skills into more complex and high skilled tasks and techniques, with a high quality finish. This will broaden their skills in areas such as knife skills through the introduction of 'julienne' and quality control when preparing vegetables. Therefore developing the knife skills that have been used in year 8 to dice and slice vegetables. The continuation of skills whilst</p>





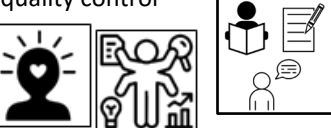
			<p>working with pastry and bread dough, to introduce other cooked elements to the dish. Therefore requiring pupils to consider dovetailing tasks and time management more effectively. Research tasks will allow pupils to develop their independent research skills and apply their findings to their inform design work: which will develop and underpin the research skills used in year 8 when investigating and researching nutritional needs of different life stages.</p> <p>Where was this previously taught? How does this unit link back to prior learning?</p> <p><b>Links to Future Learning</b>  This provides students with the breadth of knowledge and skills necessary to understand the key aspects relating to preparing, combining and shaping ingredients and applying food science knowledge in a practical context. This will embed a foundation of knowledge and understanding for future learning when pupils embark on GCSE Food Preparation and Nutrition, whereby pupils will investigate shortening, plasticity, aeration, ingredient choice and will require a more in depth application of knowledge. Where is this taught in the future? Why will this benefit students at this point in their learning and in future?</p>
		<b>D&amp;T</b> <b>Weeks 15-21</b>	<b>Food</b> <b>Weeks 15-21</b>
<b>Year 9</b>	<b>Theme</b>	 <p><b>Pupils take influence from a theme to produce a cast of using pewter.</b></p>	 <p><b>Food Provenance</b></p> 
	<b>Knowledge / skills</b>	<p><b>Knowledge:</b>  Pupils will develop ideas using biomimicry to influence design ideas.</p> <p>Pupils will develop knowledge of a range of Smart materials and how they are incorporated into products.</p>	<p><b>Knowledge:</b>  Pupils will learn what food provenance is. Pupils will research and investigate different ways food can be grown, caught and reared. This will include investigations into intensive farming, free-range farming, organic farming and sustainable fishing. Pupils will apply this learning by designing and making a pasta dish that must include ingredients from these areas.</p>

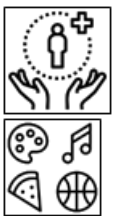
		<p>Pupils use polymorph to produce a prototype of their design before casting in pewter.</p> <p><b>Skills:</b> Pupil will develop knowledge and skills in the production of moulds to cast molten pewter to produce products. Pupil will use a range of skills using hand tool, machinery and CAD/CAM to develop their final piece.</p>	<p>Pupils will learn the function of ingredients in pasta dough Pupils will learn about food miles and how this can impact on the environment and how buying locally sourced foods and seasonal foods can reduce food miles. Pupils will learn about food waste and through investigation learn about ways it can be reduced.</p> <p><b>Skills:</b> Pupils demonstrate pasta making, different sauce making techniques Pupils will learn how to make fish cakes, using skills such as shaping and enrobing.</p>
<b>Rationale</b>		<p><b>Links to Previous Learning</b> The previous learning experienced allowed pupils to shape a range of materials taking into account their working properties, this unit continues the depth of the knowledge while allowing pupils to be able to consolidate their knowledge of CAD/CAM and metal work methods independently to produce a mould for the pewter to be cast into. This unit broadens the range of skills and knowledge and skills and allows pupils to apply them independently. The level of challenge is increased by tasking pupils with producing a more refined and sophisticated outcome.</p> <p><b>Link to Future Learning</b> Pupils have now developed a range of skills and processes to manipulate, join and form a range of materials to prepare them to undertake the GCSE.</p> <p><b>Why</b> Students need a knowledge of a broad range of materials/properties and knowledge on how to carry out practical techniques for GCSE, by the end of KS3 pupils have a broad experience of materials, skills and techniques ready for GCSE.</p>	<p><b>Links to Previous Learning</b> The previous learning experienced allowed pupils to form bread and pastry dough, this unit of work allows them to experience pasta making to further develop their knowledge and understanding of how some techniques in food are interchangeable and the importance of choosing the correct ingredient for a specific dish; for example the correct flour for pasta or bread making. Previous learning on the use of eggs in dishes will be used to look at how egg can be used for binding and coating, how different sauces can be thickened in different ways dependant on the dish. Enabling pupils to demonstrate a range of complex practical skills and explain the functional and chemical properties of ingredients in a range of dishes.</p> <p><b>Link to Future Learning</b> In this learning pupils are taught the foundation skills in order to undertake the GCSE Food Preparation and Nutrition course. Here, they will develop the skills and knowledge of how to prepare, plan and cook more complex and challenging dishes.</p> <p><b>Why</b> Pupils will develop their learning breadth and depth of knowledge of the original sources of ingredients. This learning provides pupils with further scope to develop their knowledge and use of flavouring and achieving a well presented dishes. Pupils are now knowledgeable on the issues relating to where our foods come from, they are able to suggest ingredients for dishes which contribute to a healthy varied diet as well as their journey from the farm to the fork.</p>




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KS4 D&T

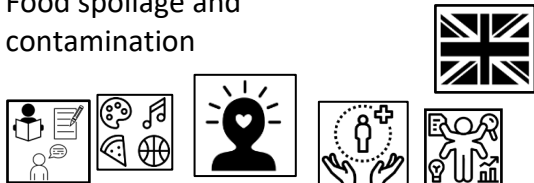
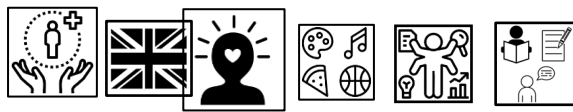

	<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
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Year 10	<b>Theme</b>	 <p>New and Emerging Technologies Energy, materials, systems and devices.</p>	<p>Practice NEA – Design a desk lamp Materials and their working properties</p> 	<p>NEA Title released by AQA (June 1<sup>st</sup>) Exam Preparation: Commercial Manufacturing and quality control</p> 
	<b>Knowledge / skills</b>	<p>Understand how new technologies have been developed and changed the way we live. Sustainability Upcycling Discuss the different methods of energy generation and the impact on the environment.</p> <p>Investigate the impact of market push/technology pull.</p> <p>Adopt a systems approach to designing.</p> <p>Analyse and investigate the functions of mechanical devices.</p> <p>Skills audit practical task. Analyse and investigate the primary sources, characteristics, physical and working properties of; papers and boards, natural and manufactured timbers, metals and alloys, polymers and textiles.</p>	<p>Practice NEA – Designing Principles Investigate the work of others. Investigate primary and secondary data.</p> <p>Develop design proposals as a result the exploration of design opportunities and users' needs wants and values.</p> <p>Present design response using 3D drawing techniques.</p> <p>Communication and development of ideas. Prototyping and responding to evaluation.</p> <p>Pupils continue their lamp design process along with the introduction of commercial and manufacturing.</p>	<p>Know and understand commercial manufacturing treatments and finishes relating to timber, polymers and timbers.</p> <p>Describe making principles, such as material selection, tolerances, specialist materials and techniques. Material management and marking out.</p> <p>NEA Task Identifying and investigating design possibilities. Producing a design brief and specification Generating design ideas Designing Principles</p>
	<b>Rationale</b>	<p><b>Links to Previous Learning</b> This unit further develops pupil's breadth of knowledge of a broader range of materials, taking in account the physical and working properties effect their performance. Learning from year 8 looking into energy generation is revisited and the effects on the environment. Pupils will develop on knowledge from year 9 looking in to new and emerging technologies.</p>	<p><b>Links to Previous Learning</b> Learning from KS3 is drawn upon in this unit where pupils have responded to a design brief and developed their own creative ideas while working within the technical constraints.</p> <p><b>Links to Future Learning</b> Now pupils have established the core principles of D&amp;T, this unit will allow pupils to embark on</p>	<p><b>Links to Previous Learning</b> The knowledge and skills developed in KS3 and the prior learning in year 10 relating to building skills in research, design, knowledge of technical properties and link to this unit.</p> <p><b>Links to Future Learning</b></p>

		<p><b>Links to Future Learning</b> This learning links to future expansion of depth into industrial practices, materials and their properties and developing a range of more complex practical skills.</p> <p><b>Why</b> Pupils will study the CORE aspects of the specification through practical and theory to gain a broad knowledge of the key elements of D&amp;T. Pupils will establish an understanding of industry and manufacturing in a local context, linking to careers and the real world.</p> <p>Pupils will learn specific key materials and systems which will be covered through theory lessons and reinforced through exam questions.</p>	<p>a teacher led iterative design process as a practice for their NEA (50%).</p> <p><b>Why</b> This unit will provide pupils with the breadth of required knowledge to embark on the NEA by developing their lighting idea through a series of individually planned experiments. Pupils will use a wide range skills such problem solving, communication and evaluation skills to determine a successful outcome.</p>	<p>This learning will further allows for the embedding of core and specialist principles along with enough breadth of knowledge to embark on generating and developing creative ideas.</p> <p><b>Why</b> Pupils will learn about a range of manufacturing techniques and components at this time in order to establish a secure knowledge of processes available in industry.</p> <p>At this point in the curriculum the pupils will embark on the first section of the NEA will now be completed in a timely manner in order to allow pupils to progress onto generating and developing of ideas.</p>
		<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<b>Year 11</b>	<b>Theme</b>	NEA Task Specialist Technical Principles	NEA Task Realising Design Ideas Analyse and evaluate Paper 1 Revision	Paper 1 Revision
	<b>Knowledge / skills</b> 	Developing Design Ideas Realising Design Ideas Analyse and evaluate  Exam content: Recognise specialist technical principles Explain how to improving functionality Explain ecological and social footprint of Apply the principles of the 6 R's	Revision ALL Units (revision will commence as soon as all four topics are completed.) School Policy is that we finish the curriculum by February half-term.  Pupils will secure the depth and breadth of knowledge in preparation for the Paper 1	Revision of all units  Developments in new materials Systems approach to designing Mechanical devices  Throughout this unit pupils will focus on developing their skills of revising using a range of techniques that have been

  	<p>Explain different scales of production used in manufacturing.</p>	<p>assessment. Knowledge and skills relating to;</p> <p>Core technical principles Specialist technical principles New and emerging technologies Energy generation and storage</p>	<p>ongoing throughout the GCSE course. Pupils will revise and practice the skills of answering exam questions on industrial practices, developments in industry using a range of exam style questions, with feedback given through self-assessment, peer assessment and teacher assessment. Pupils will focus on the skill of reading and interpreting questions and the importance of proof reading answers.</p>
<p><b>Rationale</b></p>	<p><b>Links to Previous Learning</b> Consolidate and build on depth of previous learning about materials and processes leading to the investigation of more refined aspects of specialist technical principles relating industrial practices.</p> <p><b>Links to Future Learning</b> Industrial concepts and improving functionality of products features in this unit to building on existing knowledge and is considered again at the end of the NEA design process.</p> <p><b>Why</b> Pupils need to have an understanding of the design process in relation to industry so they can apply the concepts to their own design in the NEA. Complete the developments and making section of the NEA.</p>	<p><b>Links to Previous Learning</b> The realisation of design ideas in this unit allow pupils to demonstrate their knowledge and application if practical skills acquired throughout the curriculum. Pupils will building on their evaluation skills established</p> <p><b>Links to Future Learning</b> Pupils will be prepared for the next as this unit will broaden their knowledge of materials and technical skills as well as refine their knowledge in order to equip them to attempt longer answer questions/</p> <p><b>Why</b> Build on and consolidate Year 9 to 11 knowledge and skills. Be exam ready, by revising independently and plugging the gaps of any missing knowledge. Attend all revision sessions and practice past exam papers.</p>	<p><b>Links to Previous Learning</b> Learning will enable pupils to secure and embed the knowledge established earlier in the curriculum to answer exam questions.</p> <p><b>Links to Future Learning</b> There are link to A level D&amp;T and aspects of Product Design as well as vocational course available at higher education such as joinery, construction and manufacturing.</p> <p><b>Why</b> Pupils need to revise in preparation for their final exam that is worth 50% of their final grade. This links to all prior learning and will focus on knowledge building and areas pupils and teachers identify as areas needed for revision.</p>




KS4 Food Preparation and Nutrition

		Autumn	Spring	Summer
Year 10	<b>Theme</b>	<p>Food, nutrition and health                      Planning, preparing and cooking a balanced meal for a specific dietary need                      Sensory testing and evaluation                      Food spoilage and contamination</p> 	<p>Functional and chemical properties of food                      NEA1 style investigation:                      Enzymic browning</p> 	<p>NEA2 style project: Designing Street food                      Students' knowledge, skills and understanding in relation to the planning, preparation, cooking, presentation of food and application of nutrition related to the chosen task.</p> 
	<b>Knowledge / skills</b>	<p>Investigate LBV and HBV protein, protein complementation. Know and understand the effects of an excess and deficiency of protein in the diet.                      Know and understand the chemical structure of fat. Investigate different types of fat and how this effects health.                      Know and understand the effects of an excess and deficiency of fat. Investigate and learn the different types of carbohydrate: sugars and complex carbohydrates. Know and understand</p>	<p>Investigate and learn how protein reacts to food preparation processes and cooking methods. Learn and know what denaturation, coagulation, gluten formation and foam formation.                       Investigate, learn how carbohydrates react to food preparation processes and cooking methods. Learn and demonstrate dextrinization and caramelisation</p>	<p>Investigate, know and apply knowledge on the reasons why food is cooked.                       Know and learn the different methods of transferring heat to food: Convection, conduction and radiation. Investigate and analyse how different cooking methods affect the appearance, palatability and nutritional content of food.                       Investigate the primary and secondary stages of food processing and production.</p>

		<p>the effects of an excess and deficiency of carbohydrate. Investigate and analyse the effects of cooking on vitamins. Know and understand the function of a range of vitamins and minerals and the effect of a deficiency and excess for each one. Learn how to carry out a nutritional analysis. Analyse and evaluate a nutritional analysis. Know and understand the importance of water in the diet.</p> <p>Learn and know how dietary guidelines enable people to plan balanced meals. Apply knowledge to planning, preparing and cooking a balanced meal with applied nutritional knowledge and understanding.</p> <p>Understand what makes food unfit and unsafe to eat. What are the signs of food spoilage are. How microorganisms are used in food production.</p>	<p>Investigate and learn the functional and chemical properties of fat including how they react to food preparation processes and cooking methods. Learn, know and demonstrate plasticity, shortening, emulsification and aeration.</p> <p>Learn and know the signs of food spoilage: moulds, enzymes and yeast. Investigate and learn how micro-organisms can spoil food and make it unsafe to eat and how enzymes can spoil the palatability of food.</p> <p>Food investigation style assessment NEA 1 focusing on how to prevent enzymic browning.</p> <p>Students will have an understanding of the working characteristics, functional and chemical properties of ingredients related to the task. They will know and understand how enzymic browning occurs and ways to prevent it.</p> <p>Students will know how to research, reference and present concise and relevant research related to a task. Alongside this, students will learn how to carry out a range of appropriate testing methods and how to record the results e.g. annotated photographs, labelled diagrams, tables, charts, sensory testing methods, viscosity tests. Pupils will learn how to interpret and analyse results of investigative work.</p>	<p>Students will know and understand how to research and analyse a task.</p> <p>Students will know how to competently execute a range of technical skills and processes that lead to appropriate and justified final dishes. They will know and understand how to apply safe working practices in planning and practical work. Students will have learnt, developing knowledge of the different technical skills and applied this to practical tasks. Students will have knowledge and understanding of planning, dovetailing where appropriate and time management, this will be applied to their work. Pupils will demonstrate knowledge and understanding of how to carry out sensory evaluation, analyse and evaluate results to identify improvements to their dishes.</p> <p>Students will know how to select and use the correct equipment for different technical skills in the preparation and cooking of selected dishes. Pupils will demonstrate food safety principles for storing, preparing and cooking a range of ingredients and dishes suitable for the task.</p>
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	<b>Rationale</b>	<p><b>Links with previous learning</b> Pupils will embed and develop knowledge and skills from KS3 relating to food spoilage and contamination in order to expand on this throughout the sequence of lessons.</p> <p><b>Links with Future Learning</b> This unit will link to future learning in NEA1, NEA2 tasks and their final exam where pupils will exercise their knowledge of nutrients in the effects of ingredients relating to the chemical and functional properties when preparing a range of complex dishes whilst demonstrating a secure knowledge of the principles of food safety to avoid bacterial contamination.</p> <p><b>Why</b> Pupils are given the opportunity within this unit to further depth and breadth of knowledge relating to diet and health. Building on established learning for KS3, pupils will have a strong understanding of nutrition and be able to make links between theory and practice to apply their understanding of food and nutrition to practical preparation</p>	<p><b>Links with previous learning</b> The learning in this unit calls upon previous knowledge in year 8 where pupils establishing knowledge of the functional properties of ingredients, the sequence of lessons throughout the curriculum allows pupils to build their understanding in order to experience success in this unit.</p> <p><b>Links with Future Learning</b> This unit is included at this point to further develop the practical skills, alongside knowledge of a range of ingredients that will assist pupils when completing all 3 assessed units for this qualification. It also allows pupils to prepare for NEA1 in the September of year 11 which is worth 15% of their final grade.</p> <p><b>Why</b> This unit of work allows pupils to develop their knowledge and understanding of how applying cooking methods effects the working characteristics functional and chemical properties of nutrients in ingredients when preparing and cooking foods in a safe and hygienic manner.</p>	<p><b>Links with previous learning</b> Pupils use prior knowledge from key stage 3 learning on safety &amp; hygiene in the kitchen and build on this in order to develop the application of knowledge of bacterial control and prevention and to the planning.</p> <p>This unit of work allows pupils to establish depth in their knowledge and understanding of diet, nutrition and health building and developing the knowledge from KS3 whilst focusing on specific health conditions from the GCSE specification in more detail.</p> <p><b>Why</b> This unit is included at this point to further develop the practical skills and allow more independence in preparation for their practical exam in Year 11. It will also allow pupils to further develop the skills of research, evaluation and analysis, allowing pupils to prepare for NEA2 in year 11 which is worth 35% of their final grade.</p> <p>This unit will also introduce in more detail methods of heat transfer that pupils can apply to NEA2 and</p>
		<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<b>Year 11</b>	<b>Theme</b>	Exam Focus: Food Provenance and raising agents NEA1 Investigation task (15%) Exam topic based on investigation focus	NEA 2 task (35%) Exam focus: Food choice	Food Labelling Bacterial Contamination General Revision

		<p>Sensory Evaluation</p> 	<p>Microorganisms and enzymes</p> 	
<p><b>Knowledge / skills</b></p>		<p><b>Questions will be focused more once the task has been released on 1<sup>st</sup> September of the exam academic year</b></p> <p><b>Knowledge:</b> Food investigation assessment NEA 1 Students will have an understanding of the working characteristics, functional and chemical properties of ingredients related to their chosen task. They will know and understand how certain ingredients work. Students will know how to research, reference and present concise and relevant research related to a task. Alongside this, students will know to carry out a range of appropriate testing methods and how to record the results e.g. annotated photographs, labelled diagrams, tables, charts, sensory testing methods, viscosity tests. A knowledge of how to interpret and analyse results of investigative work.</p>	<p>They will know and understand how to apply safe working practices in planning and practical work. Students will have knowledge of the different technical skills. Students will have knowledge of planning, dovetailing where appropriate and time management. Knowledge of how to carry out sensory evaluation and identify improvements to their dishes. Students will know how to select and use the correct equipment for different technical skills in the preparation and cooking of selected dishes. Knowledge of food safety principles for storing, preparing and cooking a range of ingredients and dishes suitable for the task. Pupils will know how a range of factors can impact on food choice</p> <p><b>Skills:</b> Pupils will be able to apply their knowledge of factors that impact on food choice and apply this to exam questions. Pupils will develop their independent researching skills and be able to choose appropriate research methods for their chosen task. Pupils will select high skilled dishes appropriate for their task to demonstrate a range of technical skills. Pupils will produce clear, logical and accurate plans for their 3 final dishes which will include all of the stages of making, including appropriate</p>	<p><b>Knowledge:</b> Students will know the compulsory and non-compulsory information needed on food packaging. They will know the purpose of nutritional labelling and how it is presented on food packaging. Students will have knowledge of food Marketing and how it influences food choice. Revision lessons will compromise of areas highlighted by staff and students for revision and will cover topics/knowledge previously studied.</p> <p><b>Skills:</b> Throughout this unit pupils will focus on developing their skills of revising using a range of techniques that have been ongoing throughout the GCSE course. Pupils will revise and practice the skills of answering exam questions for food preparation and nutrition using a range of exam style questions, with feedback given through self-assessment, peer assessment and teacher assessment. Pupils will focus on the skill of reading and interpreting questions and the importance of proof reading answers.</p>

			<p>timings, reference to food safety, with appropriate dovetailing.</p> <p>Students will apply all previous knowledge and understanding to produce 3 high skilled dishes under exam conditions in a kitchen.</p> <p>Pupils will use their knowledge and understanding of sensory testing and evaluation to record and analyse the sensory properties (taste, texture, aroma and appearance) of the three final practical dishes. Pupils will then independently carry out a nutritional analysis of the three final dishes, and analyse the cost of the three final dishes</p>	
<b>Rationale</b>	<p><b>Links to Previous Learning</b></p> <p>The curriculum planning prepares pupils for this unit of work by equipping them with breadth of knowledge of ingredients, nutrition diet and health and practical skills required to undertake the NEA requirements.</p> <p><b>Links to Future Learning</b></p> <p>Pupils will be prepared for the next as they will be equipped with the skill and knowledge to prepare health balanced meals for a range of nutritional requirements.</p> <p><b>Why</b></p> <p>NEA1 is the first Non Examined Assessment and is released on 1<sup>st</sup> September by AQA. It is worth 15% of the student's final grade and is a food</p>	<p><b>Links to Previous Learning</b></p> <p>Previous learning from the curriculum relating to diet health and nutrition will response to the nutritional requirements of a range of dietary needs</p> <p><b>Links to Future Learning</b></p> <p>Pupils will be prepared for the next as this unit will broaden their knowledge of functional properties of ingredients, technical skills as well as refine their culinary skills producing complex dishes.</p> <p><b>Why</b></p> <p>NEA2 allows pupils to apply all prior learning to a task given by the exam board. This Non Examined Assessment is 35% of the student's final grade and includes a 3 hour practical exam. Pupils' prior learning and all practical work including more</p>	<p><b>Links to Previous Learning</b></p> <p><b>Learning will enable pupils to secure and embed the knowledge established earlier in the curriculum to answer exam questions.</b></p> <p><b>Links to Future Learning</b></p> <p>Pupils will be prepared for further education or employment with the skills and knowledge established throughout the curriculum allowing for a firm foundation to enter into A Level Food and Nutrition, Catering or Hospitality.</p> <p><b>Why</b></p> <p>Pupils need to revise in preparation for their final exam that is worth 50% of their final grade. This links to all prior learning</p>	

		<p>investigation task. Students are prepared for this task through food investigations throughout key stage 3 and 4 looking at the functional and chemical properties of foods. The specific learning for this task will depend upon the task title chosen but will inform exam preparation and revision as students through the task develop their understanding of the working characteristics, functional and chemical properties of ingredients.</p>	<p>independent, complex tasks in Year 10 are preparing pupils for this task. The task allows for exam preparation through food provenance, functions of ingredients, nutritional analysis and knowledge also.</p>	<p>and will focus on knowledge building and areas pupils and teachers identify as areas needed for revision.</p>
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