

**KS4 Curriculum skills overview 2023-24**

Year 10		Year 11		
<b>D&amp;T</b>	<b>Term 1</b>	<p><b>Half Term 1 - Materials</b>  <b>Skills:</b> Students will be introduced to all materials groups during theory lessons, but will then be required to select materials from various groups to design and make a series of small products. Activities are designed to enable students to explore first hand the working properties of the materials and to evaluate their effectiveness, while practising basic practical activities.  <b>Knowledge:</b> Exploring the working properties, categories and applications of papers, boards, woods, metals, composites, fabrics, technical textiles, and smart materials.</p> <p><b>Half Term 2 - Specialist Unit</b>  <b>Skills:</b> Students deepen their knowledge of their specialist subject during this term. GP uses paper and board to create packaging for a simple laser cut product. To revisit the Vac Forming process and use CAD to create the design. Students will also practice the skills of producing batches of products manufactured from types of card. Textiles students further develop their surface decoration and pattern cutting skills by making a bear with previously learned techniques and being introduced to new skills such as batik and stitch and slash.  <b>Knowledge:</b> Building on the first unit, GP students will further explore the origins and uses of papers and boards. Textiles students look at the suitability of the surface decoration techniques to different products. The focus in both areas is on levels of production and commercial processes. Students will compare the levels of production and the techniques that apply to each one, as well as developing a deeper understanding of the properties and applications of their chosen material.</p>	<b>Term 1</b>	<p><b>Designing and developing ideas</b>  <b>Skills:</b>            Design ideas: Generating design ideas, working to a design brief, communicating design ideas.            Design development: Realising design detail, production planning, CAD modelling, soft modelling in the workshop. <b>Working to deadlines and time management is also a major skill that is developed through an independently led project like the NEA.</b></p> <p><b>Knowledge:</b>            Completion of this section of the NEA is mainly skills based with no theory lessons involved. However, understanding of the modelling process, modelling materials, drawing techniques and CAD will be explored through the NEA tasks.</p>
	<b>Term 2</b>	<p><b>Half Term 3 - Environmental, social and cultural issues</b>  <b>Skills:</b> To create innovative design solutions by 'Reusing' waste products. Students must create design ideas for products made from will be required to submit a production plan and outline the tools, equipment and process they will require to manufacture their designs.  <b>Knowledge:</b> Students will explore and evaluate the impact that new technologies and materials have on climate change as well as analysing how designers and consumers can limit their impact on the environment. They will be required to analyse the environmental impact of a variety of products and suggest ways in which it could be reduced.</p> <p><b>Half Term 4 - Systems &amp; Mechanisms</b>  <b>Skills:</b> Students will explore a variety of CAD/CAM equipment and begin to operate them independently (Solidworks, laser cutter, 3D printer). Students will learn to code through a variety of tasks based around a Microbit.  <b>Knowledge:</b> Students will explore the common mechanical systems and create prototypes to support their understanding. They will be required to calculate mechanical advantages, ratios and speed. Students will work through a series of coding tasks to be able to apply theory around inputs and outputs.</p>	<b>Term 2</b>	<p><b>Making and Evaluating</b>  <b>Skills:</b>            Working to a production plan, completing practical tasks independently, producing high quality outcomes using appropriate tools and equipment, quality assurance and tolerance. <b>Working to deadlines and time management is also a major skill that is developed through an independently led project like the NEA.</b></p> <p><b>Knowledge:</b>            Completion of this section of the NEA is mainly skills based with no theory lessons involved. However, an understanding of the working properties of materials, tools and equipment and quality assurance will be further developed through the practical activities.</p>
	<b>Term 3</b>	<p><b>Half Term 5 - Practice NEA</b>  <b>Skills:</b> Students will revisit the communication techniques practiced in Year 8 and be required to evaluate the applications of each style of drawing. Students will design a product in response to a problem that they have generated, in preparation for the NEA.  <b>Knowledge:</b> Uses and applications of working and pictorial drawing techniques. Students will explore user requirements, human factors and write a specification for their product before creating a prototype in the workshop.</p> <p><b>Half Term 6 - NEA Research Section</b>  <b>Skills:</b> Investigation techniques, primary and secondary research, analysing a set challenge and generating possible solutions to a design challenge.  <b>Knowledge:</b> Understanding of the process of NEA and how to generate ideas by exploring scenarios, contents and user requirements.</p>	<b>Term 3</b>	<p><b>Revision</b>  <b>Skills: Revisiting Year 10 content. Exam questions, revision techniques</b></p> <p><b>Knowledge: Recap of full Year 10 content:</b></p> <ul style="list-style-type: none"> <li>- <b>Materials</b></li> <li>- <b>Specialist</b></li> <li>- <b>Environmental, social and cultural issues</b></li> <li>- <b>Systems and Mechanisms</b></li> <li>- <b>New designers, human factors</b></li> <li>- <b>Communication techniques, CAD/CAM</b></li> </ul>
	<p><b>Links to prior learning:</b> Drawing techniques, generating designs in response to a brief, materials analysis, practical skills in all areas, knowledge of materials used in KS3.  <b>By the end of year 10:</b> Students have a deep understanding of materials, their applications and have developed an awareness of how design and designers impact the wider world. Students should be able to respond to a design brief by producing detailed and creative solutions, and have an understanding of the processes required to independently make prototypes of their designs in a practical environment and through the use of CAD.</p>		<p><b>Links to prior learning:</b> All elements of the NEA have been covered at least once prior to starting the work (design brief, design ideas, practical work), the importance of which is consolidated in their NEA.  <b>By the end of year 11:</b> Can realise a high quality and innovative design solution to a detailed design specification which fulfils the requirements of its user. They can create practical outcomes independently, selecting the correct tools and equipment, and use CAD and other communication techniques effectively. They can test and evaluate the success of the solution against various factors.</p>	

Year 10			Year 11		
FPN	Term 1	<p><b>Skills:</b> Practical and investigation based - Portioning chicken (chicken kiev), filleting fish (knife skills), meringue (use of electric whisk), lemon flan (setting mixture), bread dough making and shaping, carrot cupcakes (general skill), swiss roll (raising agent), yorkshire pudding (raising agent), sweet and sour chicken (sauce making).</p> <p><b>Knowledge:</b> Introduction to the eatwell guide. Understanding of the nutrients carbohydrates and protein including their functions, sources and effects of excess and deficiencies and relate them to differing life stages. Functional and chemical properties of foods are explored and understanding shown for fermentation and gluten formation, dextrinisation, raising agents, coagulation, denaturation as well as the chemical structure of protein and amino acids. Food provenance is explored with primary processing of wheat, free range and intensive farming.</p>	Term 1	<p><b>NEA1 - Food Investigation Task (15%)</b></p> <p><b>Skills:</b> Three independent practical investigations into the working characteristics, functional and chemical properties of ingredients. A written electronic report of 1500-2000 words is created with the use of excel graphs. Information needs to be concise and include photographic evidence.</p> <p><b>Knowledge:</b> Students are provided with three different briefs to complete a food investigation - they must choose one. Students use their prior knowledge from Year 10 and research into the functional and chemical properties of a food or ingredient using a series of experiments.</p>	
	Term 2	<p><b>Skills:</b> Practical and investigation based - Cheese and onion pasty (shortcrust pastry), apple strudel (puff pastry), knife skills preparing a courgette (baton, julienne, oblique, slice, dice, brunoise), spinach and ricotta pasta (dough, pasta extruder), hash brown (grating), orange flan (segment), tomato rose and onion lotus (decoration)</p> <p><b>Knowledge:</b> Eatwell guide further explored to show an understanding of the nutrients water, fats and vitamins. Functions, sources and effects of excess and deficiencies are explored, relating them to differing life stages. Functional and chemical properties of foods are explored and understanding shown for emulsification, plasticity, shortening, hydrogenation, enzymic browning and ripening as well as the chemical structure of saturated and unsaturated fats. Food provenance is explored with focus on harvesting, food miles, organic fruit and vegetables, genetically modified, fairtrade, seasonality as well as the primary and secondary processing of potatoes and jam. Food safety is explored through food spillage and contamination. Introduction to conditions needed for microorganisms to live and multiply and the consequence of food spoilage with yeasts and moulds.</p>	Term 2	<p><b>NEA2 - Food Preparation Task (35%)</b></p> <p><b>Skills:</b> Research is undertaken into a brief that focuses on culture, nutrition or a specific dietary need. Students initially produce three dishes within class based learning. These technical skills are graded on and used to create higher level dishes in exam conditions. During the practical exam, students must follow a strict time plan and ensure all three dishes are made within the given time constraints. An electronic report is created and must not exceed 20 A4 pages.</p> <p><b>Knowledge:</b> Students show knowledge of their chosen brief and link it to planning, preparation, cooking and presentation of three dishes. Within the time plan, quality controls and health and safety considerations are included.</p>	
	Term 3	<p><b>Skills:</b> Practical and investigation based -Lasagne (sauce making), cheese production (denaturisation), profiteroles (raising agent, choux pastry), egg custard tart (shortcrust pastry, gelatinisation), students choose additional dishes based on a country of their choice.</p> <p><b>Knowledge:</b> Life stages including dietary needs are considered with research into the 8 tips for healthy eating. Costing and portion size are explored for ways in which a person or family can make informed food choices. Food safety is covered in many aspects. Personal hygiene and types of contamination are covered alongside microorganisms in cheese production and the use of equipment such as a temperature probe. Correct storage of foods are also explored which includes perishable and non-perishable foods and key temperatures. Factors that influence food choice are considered with religion, culture and moral belief and food labelling and brand marketing influences through packaging.</p>	Term 3	<p><b>Revision</b></p> <p><b>Skills:</b> There is a re-cap of all exam topics covered through practice exam questions, retrieval quizzes and studying case studies. Structure is given for how to answer exam questions using key words and phrases, including the extended writing questions. Focus is given to revision techniques also.</p> <p><b>Knowledge:</b> Year 10 content is revisited and the following topics covered - Food, nutrition and health, food science, functional and chemical properties of food, principles of food safety, food choice, food provenance.</p>	
	<p><b>Links to prior learning:</b> Sauce making using starch, fermentation in bread making, shortening in short crust pastry, use of raising agent in puff pastry, the Eatwell guide including names of nutrients, presentation skills, religion and culture with a project that focuses on 'Food around the World'.</p> <p><b>By the end of Year 10:</b> Practical skills are embedded and audited throughout the year. Students will cover all theory needed to prepare them for the non-examined tasks in Year 11.</p>				<p><b>Links to prior learning:</b> Knowledge and skills gained in KS3 and Year 10 are consolidated into two non-examined tasks and an exam paper.</p> <p><b>By the end of Year 11:</b> Students will have contributed to 50% of their final grade through two non-examined assessments before going into the written exam. Students will have vast knowledge of food preparation and nutrition to transfer to wider life, including selecting correct ingredients and equipment.</p>

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Hospitality & Caterin	Term 1	<p><b>Skills:</b> Pastry; shortcrust cornish pasty, rough puff apple strudel, hot water crust pork pie, choux eclairs/profiteroles, bread, spicy tomato soup</p> <p><b>Knowledge:</b> Introduction to nutrients and the 'Eatwell Guide' with further depth added from KS3 learning. Nutrition: Function, sources, deficiency, excess and nutrient amounts for different life stages. Focus on Vitamins and Carbohydrates.</p> <p>How to avoid food poisoning especially when working with raw chicken. Detailed knowledge of the different types of food poisoning bacteria and the importance of food safety legislation.</p>	Term 1	<p><b>Skills:</b> Planning dishes for a nutritional need e.g vegan; how to work with tofu. Different cooking methods and skill levels of potatoes; Rosti, Dauphinoise, Hassleback, Wedges, gnocchi, duchess, croquet, fondant. Meringue recap</p> <p><b>Knowledge:</b> Consolidation of nutritional knowledge and the importance of relating this to the life stage and various dietary requirements including medical, religious and lifestyle choices. How cooking methods change the nutritional value and flavour of foods. Plating skills.</p>	

	<b>Term 2</b>	<b>Skills:</b> Cakes; melting method brownies, whisking method swiss roll, rubbing in mocha kisses. cake decoration methods; piping, cinnamon buns, pineapple upside down cake, Chicken portioning, chicken balti, knife skills (baton, julienne) breakfast parcels. <b>Knowledge:</b> Personal safety and how to ensure no injuries. Operation of the kitchen and the front of house. Customer requirements.	<b>Term 2</b>	<b>Skills:</b> Planning dishes for a specific setting Western Deli including pasta, pastry, bread. <b>Knowledge:</b> Research into different styles of menu. Planning dishes for a specific setting and menu planning. How to ensure your plans consider health and safety, quality checks and contingency plans in case of failure.
	<b>Term 3</b>	<b>Skills:</b> Fast food; burgers, southern fried chicken, bun. Lemon meringue pie. <b>Knowledge</b> Understanding of the different job roles available in the hospitality and catering sector and the different types of provision.	<b>Term 3</b>	<b>Skills:</b> How to answer exam questions using key words and phrases. Answering long exam questions using structured responses. <b>Knowledge:</b> Re-cap of all exam topics covered through practice exam questions, retrieval quizzes and studying case studies.
	<b>Links to prior learning:</b> This course aims to provide students with an understanding of all businesses that provide food and/or accommodation and how they operate. They develop their practical skills learnt in KS3 and consolidate their knowledge of food safety and the role of an EHO. Students expand their knowledge of job roles explored in year 9 and relate them to the operation of a kitchen and front of house. Students investigate how customer needs are met and personal safety. <b>By the end of year 10:</b> Students will develop their practical skills and consolidate their knowledge of food safety. They will apply their knowledge of food borne bacteria and the storage needed to prevent illness. They can now consider planning menus for various establishments, taking into account the nutritional needs of customers while still maintaining the appeal of a dish and how it is presented.			<b>Links to prior learning:</b> Knowledge and skills gained in KS3 and year 10 are consolidated into real people and places having to consider all aspects. <b>By the end of year 11:</b> Students will have substantive knowledge and understanding relating to a range of Hospitality and Catering providers; how they operate and what they need to take into account to be successful. Students will have a disciplinary knowledge of a range of food preparation and cooking skills as well as transferable skills of problem solving, organisation, time management, planning and communication.

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Engineering manufacture	<b>Term 1</b>	<b>Skills:</b> Health and safety of tools and machines including how to shape, waste, form, join and finish materials. Group work to run through a design strategy by making spaghetti bridges which follows the iterative design strategy. Using sketching skills and CAD to modify, enrich and communicate a design proposal. Manufacturing and prototyping products to scale from working drawings and working to specific and general tolerances. Manufacturing a wooden letter with a range of different wood techniques. Using adhesive and finishes on wood. <b>Knowledge:</b> Different design strategies and requirements including identify, design, optimise and validate and the relationship between design briefs and specifications. A range of drawing techniques and how to communicate design ideas for different levels of production.	<b>Term 1</b>	<b>Skills:</b> Interpretation of a specification to be able to produce a prototype of a product using students own working drawing, manufacturing it to 1:1 scale and to a tolerance during the optimise phase. Following a time plan and record a step by step account of manufacture. Following detailed risk assessments and COSHH regulations to work safely. Organising materials and tools by creating cutting lists to replicate a JIT manufacture. <b>Knowledge:</b> Know how to plan the making of a prototype and understand the safe working practices when using a range of materials, adhesives and finishes. Reasons for selecting materials, tools, standard components and adhesives when manufacturing a prototype.	
	<b>Term 2</b>	<b>Skills:</b> Calculate material costs, consider production methods and improve practical skills by manufacturing an anglepoise lamp. Draw in orthographic projection, exploded views and sectional views. <b>Knowledge:</b> Know about wider influences on the design of new products. Consider ACCESSFM, sustainable issues and ergonomic factors. How adding annotations and correct dimensions help to communicate an idea effectively. Learning to use a range of different computer packages such as Solidworks.	<b>Term 2</b>	<b>Skills:</b> Using soldering equipment safely and following risk assessments and control measures to assemble a solder kit accurately. Attaching the soldering kit to a finished prototype by selecting relevant adhesives. Evaluating the prototype manufacturing process, audit own skills and suggest modifications to the work. <b>Knowledge:</b> Testing requirements in industry during the validate phase and how to test a prototype to inform modifications. Consider how many different personal skills are needed when going through the design cycle phases.	
	<b>Term 3</b>	<b>Skills:</b> Developing engineering designs and presenting a range of ideas through CAD engineering drawings and models which respond to a given design specification. Model breadboards and explore topics including risk assessments, hazards, COSHH and control measures. <b>Knowledge:</b> Consider circular economy, planned obsolescence and sustainability when designing and making prototypes.	<b>Term 3</b>	<b>Skills:</b> How to answer exam questions using key words and phrases. Answering long exam questions using structured responses. <b>Knowledge:</b> Re-cap of all topics covered in Term 1 for R105 exam theory through practice exam questions, retrieval quizzes and studying case studies.	
	<b>Links to prior learning:</b> Health and safety of the workshop in KS3 built upon to ensure independence and safe working practices in the workshop. Sustainability themes covered in year 7 graphics and year 9 resistant materials are re-visited and enhanced by completing life cycle assessments. <b>By the end of year 10:</b> Students should be able to work in the workshop independently and as a team, safely using a range of materials and techniques. Have a good grasp of how products are designed to fit users needs and ACCESSFM, their working environment, manufacturing capabilities and to fit a design brief and specification.			<b>Links to prior learning:</b> Health and safety continued to be built upon by students using year 10 learning to write their own risk assessments and time plans for independent prototype manufacture. Students follow their own design cycle from theory learned in term 1 of year 10. Testing prototypes built on from year 8 resistant materials and theory learned in term 1 of year 10. <b>By the end of year 11:</b> Students will have manufactured their own design of a product by following a working drawing, the design cycle and planned their own time scales. Risk assessments will be followed and students will be able to select their own tools, materials and adhesives with reasons why.	

<b>Subject</b>	<b>National Curriculum Program of study statements</b>	<b>John Spence Code</b>
<b>Cooking</b>	As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.	<b>C1</b>
	Understand and apply the principles of nutrition and health	<b>C2</b>
	Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet	<b>C3</b>
	Become competent in a range of cooking techniques [for example, 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; adapting and using their own recipes]	<b>C4</b>
	Understand the source, seasonality and characteristics of a broad range of ingredients.	<b>C5</b>
<b>Design</b>	Use research and exploration, such as the study of different cultures, to identify and understand user needs	<b>D1</b>
	Identify and solve their own design problems and understand how to reformulate problems given to them	<b>D2</b>
	Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations	<b>D3</b>
	Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses	<b>D4</b>
	Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools	<b>D5</b>
<b>Evaluate</b>	Analyse the work of past and present professionals and others to develop and broaden their understanding	<b>E1</b>
	Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups	<b>E2</b>
	Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists	<b>E3</b>

	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion].	<b>E4</b>
<b>Make</b>	Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties	<b>M1</b>
<b>Technical Knowledge</b>	Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions	<b>K1</b>
	Understand how more advanced mechanical systems used in their products enable changes in movement and force	<b>K2</b>
	Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].	<b>K3</b>

<b>Year 7 Design &amp; Technology</b>			
	Attitudes	Skills	Knowledge
C o o k i n g	Ability to follow instructions and demonstrate new skills	Work safely in a food preparation environment	As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
	Resilience when faced with a challenge	Follow the routine hygiene procedures	
	Be able to problem solve	Increase knife skills - coleslaw	
	Work to a tight timeframe	Demonstrate rubbing in skills and safe use of the oven - apple crumble	Understand and apply the principles of nutrition and health
	Use tools and equipment independently	Understand the process of fermentation - bread making	Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet
		Demonstrate creaming method - small cakes	Become competent in a range of cooking techniques [for example, 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; adapting and using their own recipes]
	Understand how to apply the principles of a balanced diet by adapting existing recipes	Understand the source, seasonality and characteristics of a broad range of ingredients	



D e s i g n	<p>Be innovative when designing products</p> <p>Be able to produce more than one design solution</p> <p>Can communicate their ideas verbally and through drawings</p> <p>Be able to visualise end product</p>	<p>Adapt existing design to suit the needs of individual product - phone stand</p> <p>Produce a range of creative and varied design ideas which fulfil the needs of the user - pen, cupcake, beanie toy</p> <p>To apply ergonomics to products - pen</p> <p>To adapt existing pattern to produce an original product - felt penguin</p> <p>To draw upon the successes and weaknesses of existing products</p> <p>Annotate design ideas including dimensions</p> <p>Use 2D Design to recreate design ideas</p> <p>Can colour to show texture, depth and shadow</p>	<p>Use research and exploration, such as the study of different cultures, to identify and understand user needs</p> <p>Identify and solve their own design problems and understand how to reformulate problems given to them</p> <p>Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</p> <p>Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</p>
E v a l u a t e	<p>Have an interest in the wider world and well known designers</p> <p>Visit museums and exhibitions</p> <p>Be able suggest improvements and modifications based upon the results of testing</p> <p>Have an opinion on products and design</p>	<p>Have an awareness of well-known designers</p> <p>To analyse existing products</p> <p>Continuously test the success of the design solution</p> <p>Use modelling to test successes and areas for improvement</p> <p>Evaluate the success of the final outcome against original design</p> <p>Explore the impact of new and emerging technology (CAD/CAM)</p>	<p>Analyse the work of past and present professionals and others to develop and broaden their understanding</p> <p>Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</p> <p>Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</p> <p>Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion].</p>
M a k i n g	<p>Ability to follow instructions and demonstrate new skills</p> <p>Resilience when faced with a challenge</p> <p>Be able to problem solve</p> <p>Work to a tight timeframe</p>	<p>Use a range of materials, equipment and processes to successfully and independently produce a high quality and well finished:</p> <ul style="list-style-type: none"> <li>● Phone stand</li> <li>● Appliqued tie dyed sample</li> <li>● Acrylic Pen</li> <li>● Skate park</li> <li>● Felt Penguin</li> </ul>	<p>Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</p>

	<p>Use tools and equipment independently</p> <p>Pay close attention to the quality of outcome</p>	<ul style="list-style-type: none"> <li>• Circuit board</li> </ul>	
<p>T e c h n i c a l k n o w l e d g e</p>	<p>Be inquisitive</p> <p>Demonstrate an in-depth understanding of materials</p> <p>Possess a keen interest in the equipment/machinery within the department</p> <p>Make links between Technology, Science and Maths</p>	<p>Analyse working properties of materials and apply this to own designs</p> <p>Have a basic understanding of electronic components and how they are used to enhance products</p>	<p>Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</p> <p>Understand how more advanced mechanical systems used in their products enable changes in movement and force</p> <p>Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].</p>