



Design Technology: Curriculum map

YEAR GROUP:	Year 9			
Rationale:	The year 9 Design Technology curriculum is designed to develop the resilience and independent learning abilities of our pupils as well as building on prior KS3 knowledge and introducing content to support future GCSE studies. It continues to provide them with an enhanced knowledge of the different specialist areas of Design Technology including Food, CAD/CAM, Textiles and Engineering Materials. The curriculum is designed to build pupils' confidence in how to work through the design and make process, using a wide variety of materials, tools, techniques and equipment.			
	Pupils will rotate around 4 different material areas in Design Technology over the course of the year. Each project will be taught over 9/10 weeks (approx. 15 hours).			
Topic/ Project	CAD/CAM 'On shape'	TEXTILES 'Bag for life'	ENGINEERING MATERIALS 'VR Headset'	FOOD 'Explore food'
Knowledge	During this project, pupils will develop their knowledge of computer aided design in the form of 3-dimensional design. They will develop their knowledge on using CAD software, particularly On Shape. Through a range of tutorials, they will learn how to accurately create product designs of various objects. Pupils will gain understanding of what CAD/CAM means, and its advantages and disadvantages in the world of technology.	During this project, pupils will develop their knowledge of how to use a client profile and theme to create a bag for a life. They will develop their knowledge on photoshop and construction techniques. Through a range of machine-based techniques, they will learn how to assemble a bag accurately. Pupils will gain understanding of fashion and textiles-based careers.	During this project, pupils will develop their knowledge and understanding of Ergonomics and anthropometric data. They will develop skills in collecting relevant primary research and understand its importance to developing design ideas. Pupils will have a greater understanding of the need for prototyping products and suitable materials that can be used.	During this project, pupils will develop their knowledge and understanding of health and safety in the kitchen. They will develop and build on skills from previous projects to include and combine more complex processes such as butchering meat, marinating and bread making, they will develop scientific food knowledge about what happens to ingredients during different cooking processes.
Skills	Design investigation skills Pupils will do research on CAD/CAM, what they stand for and examples linked to 3D modelling. Practical skills Pupils will learn how to create accurate, dimensioned sketches of parts in a 2D space. They will develop these skills into 3D parts, using various tools available to them to add finishes. They will understand the importance of accurate dimensions for each part and be able to "assemble" parts so that they fit/ "mate" together.	Design investigation skills Pupils will use a client profile and theme to develop a bag design suitable for their chosen client on photoshop. Practical skills Pupils will learn how to combine both hand and machine sewing to create a successful outcome. They will develop their sewing machine skills to ensure they can work independently, safely and accurately to construct their bag.	Design investigation skills Pupils will learn how to create designs using a specification as a guide to help guide ideas. They will investigate suitable materials for modelling / prototyping investigating their properties. Practical skills Pupils will learn how to create a fully working 3d prototype of a VR Headset, showing an understanding of correctly selecting appropriate materials fit for purpose. Pupils will also demonstrate skill in accurately measuring and cutting suitable prototype materials to produce a high-quality outcome.	Health application skills: (within the food SOW we cannot use design investigation as this is not part of the national curriculum, there we have made adaptations changing the heart from design/creativity to health) Pupils will learn how different ingredients react to cooking process and impact on recipes. They will learn how to evaluate food outcomes in relation to the scientific properties of the ingredients. Pupils will also explore the different diets that are required for diet related health problems, culture and religion diets and ethical diets. Practical skills Pupils will develop a wider and more complex range of practical skills by completing a range of focused practical food tasks. They will gain more independence when using key kitchen equipment such as the oven, hob and mixers. Pupils will understand how to select and prepare several ingredients and the different methods of processing. A large emphasis will be placed on food hygiene standards and safety
Formative Assessment	Each project has a range of formative assessment point where pupils are given feedback and opportunity to improve. This formative feedback links directly to the project but also to summative exam-based assessment within the present year or the following year.			
	Knowledge and understanding Pupils will receive formative feedback on their notes taken during the tutorials given to them. They will be given opportunity to address this feedback this will help them to recognise areas of strength and of knowledge that need further revision before a summative assessment activity. Creativity Pupils will receive formative feedback on the design development of their various product designs. They will be given opportunity to address this feedback and make improvements before printing/final make and summative marks for creativity are completed. Skills Pupils will receive formative feedback on their "dice" design. This will enable them to address this feedback and develop their skills before or during the rest of the product design projects.	Knowledge and understanding Pupils will receive formative feedback on the knowledge bank questions within the booklet. They will be given opportunity to address this feedback this will help them to recognise areas of strength and of knowledge that need further revision before the summative written exam. Creativity Pupils will receive formative feedback on the design development of their photoshop design. They will be given opportunity to address this feedback and make improvements before printing/final make and summative marks for creativity are completed. Skills Pupils will receive formative feedback on their 1st construction point creating the handle. This will enable them to address this feedback and make improvements on their skills before or during the rest of the final making process	Knowledge and understanding Pupils will receive formative feedback on the knowledge bank questions within the booklet. They will be given opportunity to address this feedback this will help them to recognise areas of strength and of knowledge that need further revision before the summative written exam. Heart Pupils will receive formative feedback on the planning meals for diet related health problems, culture and religion and ethical related diets. Pupils will also receive formative feedback on the write up/ evaluation of the cake experiment. They will be given opportunity to address this feedback and make improvements before summative marks for the health strand are completed Skills Pupils will complete a skills audit but doing a RAG rating on skills for each dish they make, they will receive formative feedback on the skill audit. This will enable them to address this feedback and make improvements when cooking future dishes.	



Summative Assessment	Pupils will be assessed at the end of every project. Each pupil will be assessed on the Design Technology strands Head, Heart, Hands and an average for each project will contribute to the overall progress level alongside the high stakes test. This will be compared to their target pathway to monitor pupil progress.			
	Knowledge and understanding Pupils will be assessed on the quality of written communication within the booklet and understanding of the tools used during each project. Creativity Pupils will be assessed on the "Toy Car" design and assembly. This assessment will factor in their response to formative feedback given. Skills Pupils will be assessed on the final product outcomes of each project, specifically the "Toy Car" and "Lego Figure" projects. This will include: The accurate use and understanding of On Shape tools The overall accuracy and attention to detailed dimensions. The suitability of various parts and how the "assemble" together.	Knowledge and understanding Pupils will be assessed on the quality of written communication within the booklet and the completed knowledge bank questions. Creativity Pupils will be assessed on the photoshop print design and the development of this design idea. This assessment will factor in their response to formative feedback given. Skills Pupils will be assessed on the final product outcome. Including: The safe use of tools and equipment The overall accuracy and finish The suitability and quality of the print.	Knowledge and understanding Pupils will demonstrate their understanding through a range of short knowledge bank questions and their written content in their book. Creativity Pupils will be assessed on their ability to use collected research to design and develop a range of ideas for both the strap attachment and the Virtual headset. Skills The product will be assessed through development of an accurate prototype VR headset taking material choice and the safe use of equipment into consideration.	Knowledge and understanding Pupils will be assessed on the quality of written content within the booklet and the completed knowledge bank questions. Health Pupils will be assessed on their understanding planning meals for health-related diets, culture and religion diets and ethical diets. Pupils will also complete a written evaluation on a dish and the write up of the cake investigation – exploring the functions of ingredients, they will have the opportunity to respond to formative feedback. Skills Pupils will be assessed on the final product outcomes and the RAG rating of skills. Pupils will be assessed on the ability to use the oven and hob safely and the ability to demonstrate high level skills such as bread making, preparation of high risk foods. Pupils will also be assessed on the ability to adhere to health and safety and food safety and hygiene.
	All pupils will sit summative written examination that test arrange of design and technology-based knowledge and understanding at the two points within the year in line with the school assessment policy. These will be combined 50/50 with the average project grades of create an overall grade.			
Homework	Preparation Pupils will be given tasks to prepare them for activities in the following lessons. <i>Completion of projects, i.e., Dice, Toy Car parts etc.</i> Practice Pupils will be given practice-based tasks to complete on Shape, these can be based upon gaps in knowledge or understanding of covered topics. Extension Pupils will be given homework's that will give them time to address feedback and improve knowledge and understanding alongside overall work. <i>Addressing of feedback on booklet pages.</i>	Preparation Pupils will be given tasks to prepare them for activities in the following lessons. <i>Completion of client mood board.</i> Practice Pupils will be given knowledge-based task alongside questions as homework for retrieval practise and to practise exam question technique <i>Completion of analysis of bag booklet page</i> Extension Pupils will be given homework's that will give them time to address feedback and improve knowledge and understanding alongside overall work. <i>Addressing of feedback on booklet pages.</i>	Preparation Pupils should produce an A4 sheet describing what jobs could I Consider in Design and Technology. What is Design & technology and the types of jobs you could consider. Practice Pupils will complete the design task ensuring colour and annotation is complete to a high standard. Extension Pupils will be given homework's that will give them time to address feedback and improve knowledge and understanding alongside overall work. <i>Address feedback on booklet pages.</i>	Preparation Pupils will be given the task of preparing and bringing in ingredients for practical lessons. <i>Select your choice of ingredients and bring in apron and container for next practical lesson.</i> Practice Pupils will be given knowledge-based questions as homework for retrieval practise and to practise exam question technique <i>Completion of knowledge bank questions or feedback on knowledge bank questions during lesson.</i> Extension Pupils will be given homework's that will give them time to address feedback, improve knowledge and understanding, and that enhances their current subject knowledge in a way that allows them to improve. <i>Complete written evaluations on chosen dishes</i>