Curriculum Plan: Design Technology

	Autumn Term	Spring Term	Food Rotation
	Rotation – Product Design	**Rotation – Graphics CAD/CAM**	**Rotation – Food**
Year 7	**Wind Chimes**	**CAD Onomatopoeia Keyring or pendant/Oblique /Orthographic projection**	**Food and Nutrition**
	Introduction to Health and Safety, workshop rules and contract. Design: Use specifications and working drawings to guide design ideas Make: Select and use specialist tools – Hacksaws, files, coping saws, a bra-files, rules, center punch, engineers' vice Project looks at familiarizing students with tools and equipment not used at primary school. Pillar drill- Clamping, drilling jigs. Metal lathe (with supervision) Accuracy of marking out. Properties of wood metal and plastics. Evaluation: against a specification, considering the views of others.	Introduction to Health & Safety, workshop rules and contract. Design: Use computer aided design (CAD) to create a successful design that can be laser cut. Make: CAM and adhesive skills– Hacksaws, files, coping saws, a bra-files, rules, center punch, engineers' vice Project looks at familiarizing students with computer program 2D design V2 not used at primary school. Introduction and development of graphics skillset including cross curricular links to maths (2D/ 3D geometry). Expressive typography with links to the work of others. Evaluation: self and peer evaluation against the skills matrix.	Introduction to hygiene and safety: Expectations. Hazards & equipment. The 4C's. Practical skills: Bridge hold and claw grip methods. Use of the grill, hob, oven and assembling techniques. Healthy Eating: The Eatwell guide and the government's eight healthy eating recommendations. Introduction to nutrition. Commodities: Fruit and vegetables. Classification. Seasonal and benefits of fruits and vegetables.
Year 8	**Pewter Casting**	**T – Shirt Project and Isometric drawing**	**Food and Nutrition**
	Recap to Health and Safety rules and code of conduct. Introduction to pewter: What metals are allowed together to form pewter.	Recap to Health and Safety rules and code of conduct. Design: Use of hand drawn and computer aided design (CAD) to	Introduction to hygiene and safety: Expectations. Hazards & equipment. The 4C's. Practical skills: Use of the grill, hob,

	Properties and uses of the material Design: Use of hand drawn ideas, ranging from initial all the way through to final, of what their intended small-sized product will look like and how it will be positioned in the Mould. Make: After initially completing a skills-based challenge (to test students' proficiency) learners will carefully mark out and cut their Mould, using tools such as copings saws and needle files. Afterwards, they will heat up the pewter until molten and pour into Mould. Once cooled, it will be removed from Mould before finished to a high standard Project: Looks at working at a small scale and perfecting the attention to detail required when finishing to a high standard. Teaches students' the design processes required to go from initially concept to physical prototype Evaluation: against a specification, considering the views of others	create a successful design that can be transferred to a t-shirt using sublimation print method. Make: A printed T Shirt or upcycle own T Shirt Project builds on Year 7 skillset to develop an ability to research, analyse and be inspired by the work of others as well as own aesthetic choices. Wider understanding the impact of fast fashion, life cycle of products, 6Rs **GRAPHICS COMPONANT** Design: Interior and furniture design Draw: Graphics outcome- body of work developing isometric projection skills and an isometric projection of an interior design including furniture. Project builds on Year 7 skillset to develop graphics skillset. Wider understanding of the importance of accuracy and ergonomic impact of interior design. Evaluation for both projects: self and peer evaluation against the skills matrix.	oven and assembling techniques, rubbing in method. Healthy Eating: The Eatwell guide and the government's eight healthy eating recommendations. Introduction to Macro and Micronutrients, Gelatinisation and Food Provenance Commodities: Fruit and vegetables, meat cookery.
Year 9	**Puzzle Project**	**Clock Project**	**Food & Nutrition**
	Recap Health and Safety requirements - including workshop rules and code of conduct. Design: Produce a design to go on the outside of the packaging for the	Recap Health and Safety requirements - including workshop rules and code of conduct. Design: Research and exploration – looking at the work of	Introduction to hygiene and safety: Expectations. Hazards & equipment. The 4C's. Practical skills: Use of the grill, hob, oven and assembling techniques,

	wooden puzzle Make: Create a six-piece interlocking wooden Betelgeuse puzzle. Students will need to carefully mark out each separate piece before cutting out waste sections. Tools they will need to complete this challenge are try squares, marking gauges, tenon and coping saws, files	designers/design eras. (Memphis/Alessi) Communicate ideas using a range of initial sketches followed by more detailed annotated drawings. Make: Select and use specialist tools and equipment, techniques and processes - Focus on accuracy and quality of finish. Industrial manufacturing techniques – Design development using traditional modelling and CAD - laser cutter. Evaluation: of traditional manufacturing techniques versus CAD CAM. Evaluation: against a specification, taking into account the views of others	rubbing in method. Healthy Eating: The Eatwell guide and the government's eight healthy eating recommendations. Introduction to Macro and Micronutrients. Diet across life stages- To include Dietary needs and Energy needs. Food Sciences and Diet related issues. Commodities: International Cuisine
Year 10 **AQA Product Design**	3.1Core technical principles • new and emerging technologies • energy generation and storage • developments in new materials • systems approach to designing • mechanical devices • materials and their working properties. Metal based design and manufacture practical project	3.2 Specialist technical principles. • selection of materials or components • forces and stresses • ecological and social footprint • sources and origins • using and working with materials • stock forms, types and sizes • scales of production • specialist techniques and processes • surface treatments and finishes. Wood based design and manufacture practical project	3.3 Designing and making principles • investigation, primary and secondary data • environmental, social and economic challenge • the work of others • design strategies • communication of design ideas • prototype development • selection of materials and components • tolerances • material management • specialist tools and equipment • specialist techniques and processes Plastic / card-based design and manufacture practical project.

Year 10 **AQA Food and Nutrition**	Nutrition and Health: Macronutrients, micronutrients, diet and health. Diet through the life cycle. Food Choice: Factors influencing food choices, cultural and religious considerations. Understanding balanced diet, diet planning. Practical work related to food science of key macronutrients Recipe adaptation, catering for dietary needs	Food Science: Heat transfer, cooking methods, functional properties of food, Raising agents. Food Safety and Hygiene: Microorganisms, food poisoning, food storage. Experimental cooking, food science investigations Safe food handling, preventing contamination	Food Provenance and Sustainability: Food sources, organic farming, food miles British and international cuisines planning for a 2- or 3-hour practical for Year 10 exam. Consolidation of the Year. Research, critical analysis, debate skill Time plans, high level skills. Mock NEA 1 and NEA2
Year 11 **AQA Product Design**	NEA Section A / Identifying and Investigating Design Possibilities NEA Section B / Producing a Design Brief and Specification NEA Section C / Generating Design Ideas • Context • Problem analysis / Client / Target Audience / Design Brief • Current solutions x4 / analysis – aesthetics, cost, customer, environment, size, safety, function, materials, manufacturing • Market Research /results / analysis • Anthropometrics/ Ergonomics/ Analysis • Packaging information/ analysis • Design Specification • Four three-dimensional Design Idea / analysis – aesthetics, cost, context, client, target audience, size, safety, function, materials, manufacturing	NEA Section D / Developing Design Ideas NEA Section E / Realising Design Ideas • Final Idea - three-dimensional final Idea / analysis must explain design decisions – aesthetics, cost, context, client, target audience, size, safety, function, materials, manufacturing • 3-Dimensional development, modelling, photographic evidence supported by written commentary investigating how different appropriate manufacturing process' and appropriate materials could be used to produce a 3-dimensional functional prototype • Construction plan • Orthographic / Isometric • Templates / model • Use of industrial manufacturing methods	NEA Section F / Analysing and Evaluating • Photographic evidence / what went well / even better if evaluation • Evidence of Evaluation throughout design folder • Specification Evaluation • Market Research Evaluation

		• Appropriate and accurate use of hand tools / machinery to produce the final solution • Final Prototype is functional, produced and finished to a high Standard	
Year 11 **AQA Food and Nutrition**	September to October half term. NEA 1: Food Investigation – Planning and conducting a scientific investigation Research, experiment planning, data analysis November to February. NEA 2: Food Preparation Task – Planning, research, and initial ideas. Time planning, research, menu design 3hour Practical exam.	NEA 2: Carrying out research. Developing and refining dishes, sensory analysis. Advanced cooking techniques, sensory evaluation. NEA 2: Final dish preparation, presentation, and evaluation Exam Preparation: Key concepts in food science, nutrition, and safety Advanced preparation techniques, presentation skills Revision techniques, practice questions	Final Exam Revision: Revising all topics, exam skills. Consolidation of knowledge, timed practice. Going through past exam papers.
Year 12 **A Level Product Design**	Product Design theory; timbers, metals, polymers, processes, specialist tools, composites, papers and boards. **Materials and components** **Understanding interaction with our environments** **Influencing factors of design, design movements and focused practical tasks**	Digital Technology, design tasks, smart modern materials, Design and Market influences, Working directly with materials, tools and equipment to model and create Digital Technology, design tasks, smart modern materials, Design and Market influences, Working directly with materials, tools and equipment to model and create	Non-Examined Assessment – establishing a problem to study. Investigating needs, wants and values of the client/user. Analysis skills Non-Examined Assessment, Research and specification. Defining the problem that needs to be solved

	Ergonomics and design influences **Working with technology.** **Trialing and testing materials and processes including CAD and CAM**		
Year 13 **A Level Product Design**	Non-Examined Assessment Product Design theory and Design and Manufacture, Ideas, development and planning for manufacture Materials and Components, Working with technology. Trialing and testing materials and processes including CAD and CAM (laser cutting and/or 3D printing), 2, Non-Examined Assessment Product Design theory, Making the product. Workshop based machinery and CAD CAM incorporation Processes and manufacture, Working directly with materials, tools and equipment	Non-Examined Assessment Product Design theory, Making the product Workshop based machinery and CAD CAM incorporation Processes and manufacture., Working directly with materials, tools and equipment, Non-Examined Assessment, Testing and evaluating the manufactured product Consumer research/testing., Working directly with materials, tools and equipment	Revision, Exam technique Past papers, Recap exam topics Exam technique