Curriculum Intent - Design Technology

Key Stage 3: Year 7 RM

Overall Curriculum Goals To understand and be able to produce a product to a given drawing. To be able to work safely and accurately using a range of workshop tools and equipment. To understand how to realise design concepts from different material areas, with increased precision, accuracy and independence. To understand basic theory topics for the 3 main material areas					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Brahma Puzzle. To include; Health and safety of the majority of machines, tools and equipment. The cutting, sanding, drilling and marking of pine. The marking, cutting, filing and finishing of Foamex. Health and safety theory and test.	Brahma Puzzle/Plastic Award. To include; Health and safety of the majority of machines, tools and equipment. The cutting, sanding, drilling and marking of pine. The marking, cutting, filing and finishing of Foamex. Woods theory and test.	Plastic Award project and packaging To include; Researching, designing and manufacture of Foamex shape, building on skills from Brahma Puzzle; template making, cutting, filing and finishing of Foamex. Graphics and finishing of paper packaging, using a simple net. Plastics theory and test.	Electronic Toy and packaging. To include; Research and initial design ideas. Final design ideas with consideration for bought-in component. MIB work for presentation of design ideas. Electronics theory and test.	Electronic Toy and packaging. To include; Simple electronic theory and soldering of components. Pattern making, felt cutting, embellishment and assembly.	Pencil topper and EoY Exam. To include; Exam preparation lesson and EoY exam, covering all areas covered across the year. The pencil topper will include; researching and design personalised shapes. The cutting, filing and finishing of plywood. The assembly of plywood and other wood types. EoY Exam.
Key Vocabulary/Concepts/Ideas	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**
Pine, Foamex, PVA glue, pillar drill, try-square, steel rule, tenon saw, Hegner saw, flat file, vice, dowel, wet and dry paper, evaluation, success criteria. Health and safety including; guards, extraction, safety box, safety glasses, apron.	Pine, Foamex, PVA glue, pillar drill, try-square, steel rule, tenon saw, Hegner saw, flat file, vice, dowel, wet and dry paper, evaluation, success criteria. Health and safety including; guards, extraction, safety box, safety glasses, apron.	Design Ideas Concept sketching Peer assessment. Research image board. Presentation drawing. Final outcome including; coping saw, junior hacksaw, variety of file shapes, wet and dry, wire wool. Evaluation Plastics theory	Design Ideas. Concept sketching. Presentation drawing and rendering. Template/pattern. Embellishment/decoration. Stitching types. Assembly.	Soldering, PCB, LED, resistor, toggle switch, battery. Graphics, nets, packaging, text/fonts, logos. Final outcome. Packaging net. Evaluation.	Plywood, PVA glue, design ideas, evaluation, peer assessment, success criteria, wood assembly and joining techniques.
CIAG	**CIAG**	**CIAG**	**CIAG**	**CIAG**	**CIAG**
		Designing for a specific client and their needs/demands.	Designing for a specific company Brief and need.		Designing for themselves and their own needs/demands.

Key Stage 3: Year 8 RM

Overall Curriculum Goals To understand and be able to produce a range of design ideas for a set brief. To develop critical thinking skills to analyse why we use different materials for certain designs and understanding which would work the best. To understand how to realise design concepts with increased precision, accuracy and independence. To understand basic theory topics for the 3 main material areas To understand key elements of design movements, and how these can be applied to their own design ideas.					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Keyring and Packaging. To include; Research and design of keyrings. Manufacture of keyring to include; cutting, filing and finishing of aluminium. The marking and drilling of metal. The graphical design of packaging, building on the work completed on the Plastic Award and Electronic Toy.	Alessi clock. To include; Brief, Specification, design work, modelling. Research homework into Alessi and appropriate Alessi images.	Alessi clock. To include; Manufacture of templates, production planning with Gannt charts and beginning the final 3d outcome.	Alessi clock. To include; Manufacturing the final outcome, using a range of skills and processes, and building on the experiences had at Year 7 and 8. Evaluation of the completed product, and consideration of possible improvements.	Card mechanical toy. Producing the graphics on a given template, designing the end effector, and selecting an appropriate cam shape. Research homework looking at different cam shapes and end effectors.	Coat Hook To include; Cutting, filing and finishing metals, marking and drilling metals. Bending metals and using jigs. Designing and shaping Foamex end pieces. End of year exam
Key Vocabulary/Concepts/Ideas	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**
Aluminium, pillar drill, centre-punch, scribe, deburr. Specific material names and processes as required by project outcomes	Design Ideas Concept sketching Presentation drawing and rendering Prototype, 3D modelling.	Design Ideas Concept sketching Presentation drawing and rendering Prototype, 3D modelling. Final outcome Evaluation	Acrylic, foamex, aluminium, Tensol, health and safety, joining and assembly, pillar drill, mechanism. Specific material names and processes as required by project outcomes	Cam, followers, mechanical, effector, movement, linear, rotary, conversion, graphics, colour, text, fonts, logo, character.	Design Ideas Aluminium Bending jig Foamex Pillar drill Mechanical fastenings Final outcome Evaluation
CIAG	**CIAG**	**CIAG**	**CIAG**	**CIAG**	**CIAG**
	Researching successful design and manufacturing companies.				The use of jigs in an industrial setting.

Key Stage 3: Year 7 FOOD

Overall Curriculum Goals To understand and be able to demonstrate a range of practical skills include knife skills To understand the working characteristics, functional and chemical properties of ingredients To understand the nutritional qualities of carbohydrates and fibre in the diet To understand diet related illness in relation to sugar, salt and processed foods To understand the importance of health, safety and hygiene when preparing food.					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Introduction to the practical area To include Food Preparation skills Health and safety when in the kitchen and using small scale equipment with the emphasis on knives and cutting skills. Bridge hold and claw grip Practical work to include high levels of food, personal hygiene, kitchen hygiene, food hygiene and food poisoning.	**Carbohydrates, Fibre and Enzymic browning.** To include the role of carbohydrates and fibre in the diet, how to distinguish between starch and sugar, simple and complex carbohydrates **Introduction to Food Science** Test, Fruit Salad Practical, Fruit Salad Science (Enzymic browning), Carbs Health and safety theory and test Fruit salad Practical	To include food preparation skills, health and safety. Types of fibre, sources of soluble and insoluble fibre, the benefits of a high fibre diet.	To include food preparation skills, Health and safety. Theory to include the difference between flours and their uses in recipes, the impact different flours have on the structure of baked products, **Food science – Raising agents** the scientific process involved in making scones. Weighing and measuring skills Test result and practical assessment Cheese twists and assessment 4 test.	To include Food preparation skills, Health and safety. Why we need sugar and RI, added sugar, the effects of eating too much sugar, ways to lower sugar in diet. Practical assessment -Scones	To include Food preparation skills, Health and safety. The problems caused by excessive fast-food intake, the link between fast-food intake and nutrient deficiencies, how to improve the diet of children. EOY exam assessment and practical assessment – Brownies
Key Vocabulary/Concepts/Ideas	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**
Knife skills Health and Safety Knife Safety – Bridge hold and Claw grip Food hygiene Kitchen hygiene Personal hygiene Food poisoning Microbes Ambient food Danger zone High risk foods	Enzymic browning Carbohydrates Function of Carbohydrates Starch (complex carbs) Sugar (Simple Carbs) Eatwell guide Healthy Eating guidelines Texture Taste Flavour Aroma	Health and Safety Fibre Function of fibre soluble and insoluble fibre Eatwell guide Healthy Eating Guidelines Balanced diet Texture Taste Flavour Aroma	Health and safety Categories of flour Function of ingredients (flour) Butter, raising agents. Eatwell guide Healthy Eating guidelines Balanced diet Texture Taste Flavour Aroma	Health and Safety Sugar and Recommenced Intake Excess sugar Eatwell Guide Healthy Eating Guidelines Balanced diet Texture Taste Flavour Aroma	Excessive, salt, sugar and fats Diet related illness Nutrient deficiencies Eatwell Guide Healthy Eating Guidelines. Balanced diet Dietary reference values Texture Taste Flavour Aroma
CIAG	**CIAG**	**CIAG**	**CIAG**	**CIAG**	**CIAG**
Applying food science in a commercial setting	Formulating discussions concerning food science as a career route		Discussion of food science as a career route	Discussion diet related illness with regards to the NHS and managing the nation's health	

Key Stage 3: Year 8 FOOD

Overall Curriculum Goals To understand and be able to demonstrate a range of practical skills To understand the working characteristics, functional and chemical properties of ingredients To understand the sources and function of vitamins and minerals and fat in the diet To understand the preparations and storage of vegetable commodities To understand the importance of health, safety and hygiene when preparing food.					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
To include Food preparation skills, health and safety. **Theory** Critical temperatures, how bacteria multiplies, and how to prevent bacterial growth. What HACCP is, cross-contamination risks and preventative measures, how to complete a HACCP report.	To include Food preparation skills, health and safety. **Theory** The role of vitamins and minerals, the difference between fat soluble and water soluble vitamins, sources of vitamins and minerals **Assessment** 1 test Spring roll practical	To include Food preparation skills, health and safety. **Theory** The nutritional value of vegetables, how to safely store, prepare and cook vegetables, to plan meals incorporating vegetables	To include Food preparation skills, health and safety. Theory Factors that influence cuisine, dishes linked to regions of the world and creating dishes from regional ingredients The gluten content of different types of flour, the impact of gluten on baked products, how to conduct a scientific experiment. **Assessment 3** test Risotto practical	To include Food preparation skills, health and safety. Theory The role of fat in the body, how to distinguish between good fats and bad fats, the health implactions of a high fat diet.	To include Food preparation skills, health and safety. Theory The problems caused by excessive sugar intake, the link between sugar and health, how to reduce sugar intake Assessment 6 – End of year test Cheesecake practical
Key Vocabulary/Concepts/Ideas	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**
Critical temperatures Bacteria Binary fission High risk food Food hygiene Kitchen hygiene Personal hygiene Cross-contamination HACCP Detergent Core temperature Hazard Low risk foods Contamination	Fat soluble Water soluble Vitamins Minerals micronutrient Macronutrient Vitamin A, B, C, D, E, K Minerals – Calcium, Iron, Soduium Fortified Lethargic Root vegetables Tubers Texture Taste Flavour Aroma	Fat soluble Water soluble Vitamins Minerals micronutrient Macronutrient Vitamin A, B, C, D, E, K Minerals – Calcium, Iron, Soduium Fortified Lethargic Root vegetables Tubers Texture Taste Flavour Aroma	Gluten Texture Flavour Aroma Appearance Function Fermentation Cuisine Influence Regional Baked Scientific Experiment#	Visible Invisible Saturated Unsaturated Oily Healthy Eating Guideline Eatwell Guide Fatty acids Trans fats	Diet related illness Salt Sugar Fats Processed Takeaway Diabetes type 2 Stroke Heat disease Health risks Life style Risks.
CIAG	**CIAG**	**CIAG**	**CIAG**	**CIAG**	**CIAG**
Applying food science in a commercial setting					Discussion about the role of health visitors, NHS staff and teachers in promoting healthy eating

Key Stage 3: Year 9 RM

Overall Curriculum Goals To understand and be able to use the Iterative Design process To develop critical thinking skills to analyse why we use different materials for certain designs and understanding which would work the best. To understand how to realise design concepts with increased precision, accuracy and independence. To use modelling as a vehicle for communicating design intentions and applying considered improvements.					
Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
LED Torch To include; populating PCB using soldering, the graphical design of the torch packaging net. Company/brand investigation homework.	Nightlight project. To include; Design problem analysis, detailed research investigations with analysis, design brief and specification. Initial design ideas, design development and 3d modelling. Research into suitable images and themes.	Nightlight project. To include; 3d modelling and introduction and Production of final 3d outcome. Students use the iterative design process to constantly improve and refine their product. Research homework based on LDRs.	Nightlight project. To include; Production of final 3d outcome. Students are using their knowledge and experience from Years 7-9 to independently produce a complete and functional product. CAD homework project; completion of tutorials for 2D Design.	Modelling project. To include; Students response to a randomly generated Design Brief. They research the problem, identify a set of appropriate solutions, and produce models of their final design.	Modelling project. To include; Students response to a randomly generated Design Brief. They research the problem, identify a set of appropriate solutions, and produce models of their final design. End of year exam.
Key Vocabulary/Concepts/Ideas	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**	**Key Vocabulary/Concepts/Ideas**
Soldering, PCB, LED, resistor, toggle switch, battery. Graphics, nets, packaging, text/fonts, logos. Final outcome. Card.	Design Problem, Problem Analysis. Design Brief. Primary, Secondary research. Design Specification. Isometric. Orthographic. Design Ideas. Concept sketching. Presentation drawing and rendering. Design Development. Prototype, 3D modelling.	Design Development Prototype, 3D modelling. Final outcome. Iterative design. Specific material names and processes as required by project outcomes	Design Development Prototype, 3D modelling. Final outcome Specific material names and processes as required by project outcomes	Design Brief, client, user, problem, solution, design development, prototype, 3D modelling. Evaluation Specific material names and processes as required by project outcomes	Design Brief, client, user, problem, solution, design development, prototype, 3D modelling. Evaluation Specific material names and processes as required by project outcomes
CIAG	**CIAG**	**CIAG**	**CIAG**	**CIAG**	**CIAG**
	Students work with a specified client, whose needs require full consideration.			Students have an identified client they are researching, designing a manufacturing a product for.	