

KS3 Curriculum Plan 2022-23

		LP1	LP2	LP3	LP4	LP5	
TOPIC		Cooking & Nutrition:	Technical Knowledge of papers & boards, movement & mechanisms.	Technical Knowledge of Textiles. Make: Hand sewing. Evaluate: Past & present designers	Technical Knowledge of Timbers. Make: Focus practical task.	Technical knowledge of Timbers & Finishes. Make: Key keeper timbers.	
Year 7	Knowledge	<p>To understand the risks for personal and food safety in the kitchen, to include the 4 'Cs of bacteria and hygiene (cooking, cleaning, chilling and cross contamination). To know the nutrients in food and sources – the 5 main nutrients being carbohydrates, protein, fats, vitamins (A, B, C & D) and minerals (iron and calcium). To identify the food groups on the Eatwell guide, with examples. To know food provenance and the environmental issues of food waste, electricity and water usage to include the 3Rs (reduce, reuse, recycle) in the home. To know how to demonstrate the different knife cutting methods (bridge and claw methods). To know how to operate the hob and heat controls and to know what the rubbing in method is.</p>	<p>Design: Graphics skills, door hanger with mechanism.</p> <p>To know the source material (origin) of papers/boards is trees. To know the basic stages of processing paper from trees and into stock forms. To know the definition of deforestation and its impact on biodiversity. To know that the classification of paper/board is by type, weight and size. To know how lettering style and fonts can represent the meaning of the word through word art. To know the four movement types of rotary, linear, reciprocating and oscillating. To know that there are three classes of levers, and linkages can be used to change the direction of movement.</p>	<p>To know the difference between natural and synthetic fibres and to know the source material (origin) of natural and synthetic fibres. To know the properties of different fibre types (wool, cotton, silk, polyester) and to be able to identify sources of each. To know the difference between the three types of fabric construction (knitted, woven, non-woven/bonded). To know the origin of a design movement and the key designers. To know the difference between sewing stitches, running stitch, chain stitch, back stitch.</p>	<p>Design: Key keeper.</p> <p>To know the source material (origin) of timbers is trees. To know the basic stages of processing trees into timber stock forms, to make timber products. To classify timbers into two categories, hardwood and softwood and to be able to distinguish the difference between the two categories (seed type, leaf type, growing climate, rate of growth, cost). To know the properties and uses of timber types (Oak, beech, teak, balsa, pine). To know how what manufactured boards are, compared to natural timbers (MDF, plywood, chipboard). To know that timber is a renewable source for making timbers products.</p>	<p>Evaluate: Test & evaluate key keeper.</p> <p>To know why we plan our manufacturing stages before we make products. To know how to draw flow charts as a planning tool and to understand the meaning of the different flow chart symbols (start/stop oval, process rectangle, decision/question diamond). To know the potential hazards in the workshop and how to minimise these through risk assessments. To identify and name workshop tools and equipment. (Try square, bench hook, tenon saw, sanding disk) and the difference between saw types and their uses. To know why we apply finish to timber surfaces.</p>	
	Skills	<ul style="list-style-type: none"> •Weighing ingredients. •To work safely and hygienically within a kitchen. •To use a variety of cooking and preparation techniques. •Use knife skills, use of hob (heat control), use of oven, rubbing method. •Colour rendering, tonal shading and applying texture. •Graphical skills – word art & lettering styles. •Making card mechanisms. •Use the laminator. •Explore a context using 5Ws strategy. •Apply 2D and 3D methods of communicating ideas (oblique/ isometric). •Annotate sketches. •Use workshop equipment safely and correctly to shape timber. •Calculate lengths. •Measure and mark out materials. •Cut, shape and finish natural timber and manufactured boards. •Carry out risk assessments. •Cut fabric using fabric shears. •Threading a needle. •Hand sewing techniques such as running stitch, cross stitch •Tying knots. 					
	Key Vocab	<p>Risks, hygiene, safety, nutrition, nutrients, food source, protein, carbohydrates, Eatwell, environment, seasonality, food miles, reduce, reuse, recycle, rubbing in, weighing, measuring, stir frying.</p>	<p>Tonal shading, rendering, typography, isometric projection, paper processing, laminating, movement types, linear, oscillating, reciprocating, rotary.</p>	<p>Natural, synthetic, staple, filament, protein, cellulose, woven, non-woven, knitted, Pop Art, embroidery.</p>	<p>Context, material source, tree felling, seasoning, stock forms, natural woods, manufactured boards, hardwood, softwood, deciduous, coniferous, oblique, isometric.</p>	<p>Planning for manufacture, flow chart, hazards, risk assessment, accuracy, quality control, tenon saw, coping saw, scroll saw, pillar drill, disc sander.</p>	

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		<i>Evaluate: Branding, logo bottle design. Design: Drink bottle design & prototyping:</i>	<i>Cooking & Nutrition:</i>	<i>Technical Knowledge of Polymers. Make: Focused practical task Paper Clip. Design: Desk tidy:</i>	<i>Make: Polymer desk tidy Evaluate: Test & evaluate Desk tidy:</i>	<i>Technical Knowledge of Electronic systems. Make: CAD/CAM Night light:</i>
Year 8	TOPIC					
	Knowledge	To know the history and importance of branding and logo design. To know what a specification is as a list of design requirements. To know the difference between lettering styles (serif, script, sans-serif). To know about the role of colour to influence consumer appeal. To know what anthropometrics is (human measurements) and what ergonomics in successful design is. To know why bottle-cap designs include safety features. To know how to operate the hot wire sculptor to shape expanded polystyrene. To know how plastic bottles are industrially manufactured by the blow moulding process.	To understand that food contains a variety of nutrients in different amounts. To know what the macronutrients are for carbohydrates (simple and complex), fats (saturated and unsaturated). To know that nutrients have important functions in the body and that the nutritional needs of groups differs for life stages, religious groups, vegetarian/vegan, allergies and intolerances and personal activity level (PAL). To know that the conditions for bacterial growth is moisture, warmth, time and food. To understand the functions of cake ingredients and to know environmental issues relating to food miles and food waste (reduce reuse, recycle, rethink, refuse & repair).	To know that the source material (origin) of polymers are fossil fuels (oil). To know the basic stages of processing polymers from fossil fuels. To know that polymers are classified into two groups thermoplastic and thermosetting and to distinguish between these categories. To know the environmental impact of using polymers to make products. To know the working properties of acrylic and how to thermoform by line bending with the strip heater. To understand the use of jigs and formers for quality. To know the difference between 3D drawing oblique and isometric projection.	To know how to plan for manufacture using Gantt charts so that timescales can be included. To know the different workshop thermoforming processes of convection oven thermoforming and line bending. To know what manufacturing aids such as jigs and formers are and how they ensure accuracy when manufacturing. To know the how products are industrially processed by injection moulding. To know which tools to select when cutting sheet polymers (coping saw/ scroll saw). To know what a drill bit is and the type used for making holes in polymers (step drill bit).	To know what input, process and outputs are in functioning systems. To know the name and function of electronic components (resistor, LED, transistor, phototransistor). To know that symbols represent components on circuit diagrams. To know that components are fixed to printed circuit boards (PCBs) using solder. To know the stages of the soldering process. To know the thermoforming process of vacuum forming. To know the advantages and disadvantages of computers in design (CAD) and making (CAM).
	Skills	<ul style="list-style-type: none"> •Handle raw meats. •Weigh ingredients accurately. •Measure fluids accurately. •Prepare and cook to build on Y7 skills. •Use the hob, oven and knife skills. •Identify user needs to write a specification. •Analyse and evaluate existing bottles. •Calculate anthropometric data. •Develop logo designs. •Apply the ellipse technique to create 3D cylinders. •Shape modelling foam using hot wire sculptor. •Use workshop equipment safely and correctly with polymers. •Thermoform acrylic with line bender, using manufacturing aid (jig). •Annotate sketches drawn in 3D. •Develop ideas through card modelling. •Use the pillar drill with a step drill bit. •Thermoform acrylic with convection oven. •Use manufacturing aids (jigs and formers) to ensure accuracy and quality. •Use a soldering iron and associated equipment safely and correctly to create a functional circuit board for the Night Light. •Use CAD (2D Design) and CAM (Laser cutter) to design and manufacture the Night Light shade. •Use the vacuum former to thermoform the Night Light base. 				
Key Vocab	Branding, promotion, advertising, slogan, trademark, prototype, ergonomics, anthropometrics, block modelling, blow moulding.	Nutritional need, carbohydrates, starch, protein, lipids, vitamins and minerals, life stages, medical conditions, religions, lifestyle choices, food poisoning, bacteria.	Polymers, fossil fuels, finite, infinite, renewable, non-renewable, thermoplastics, thermosetting plastics, processing, thermoforming, jigs and manufacturing aids.	Gantt chart planning, risk assessment, try square, marking out, coping saw, scroll saw, pillar drill, step drill bit, convection oven thermoforming, injection moulding.	Components, light emitting diode, transistor, light dependent resistor, resistor, input, process, output, circuit, CAD-CAM, vacuum forming.	

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TOPIC		Cooking & Nutrition:	Evaluate: Past & present architects and architecture Design: CAD building design for the locality	Evaluate: Present designers and wider issues. Design: Dyson iterative design Make: Modelling materials and techniques	Technical Knowledge focusing on Metals Make: Batch Manufactured Mobile Phone Stand	Technical knowledge: Computer control, Programming Make: Computer controlled vehicle
Knowledge		To know the cooking and preparation techniques used to change commodities into suitable menu dishes. To know the effects of temperature on bacterial growth. To identify the features of high-risk foods (those high in moisture and protein). To know that the prevention/ control for bacterial growth is removing the 4 main factors (time, warmth, food and moisture). To know the signs (visible and non-visible symptoms) of food poisoning. To know how nutritional excess and deficiency can have effects on the body. To know the factors to consider when menu planning in the home and commercial kitchen including meal costing. To know the environmental factors and issues within food production and processing.	To know the role of an architect. To know the work and architectural influence of past and present architects (Zaha Hadid, Norman Foster, Frank Gehry, Frank Lloyd Wright). To know the names and applications of 2D and 3D drawing techniques (orthographic projection, oblique projection, isometric projection, one-point and two-point perspective drawing). To know how orthographic projection communicates technical detail. To know the benefits of 3D CAD software compared to 2D software (2D Design). To name and identify computer based digital design tools on SketchUp.	To know the role of a product designer/ engineer. To know the work of design engineer James Dyson and the work of humanitarian inventor, Trevor Bayliss. To know the characteristics of high-income and low-income countries to understand stakeholder / primary user needs. To know the source of renewable energy (solar, wind, hydro, tidal, biomass) and the source of non-renewable energy (oil, coal, gas, nuclear) and their impact on the environment. To know that design and making are influenced by social, ethical and environmental factors. To know the benefits of the iterative design process.	To know the source material (origin) of metals and how they are processed from ore to metal stock forms. To know that metals are classified into ferrous/ non-ferrous/ alloys and to know the differences between each. To know the properties and uses of metal types (steel, aluminium, copper). To know the impact of using metals on the environment. To know how designers approach ideas using inspiration sources. To know how tessellation reduces wastage. To know what a composite material is. To know scales of production and how quality control is applied during making.	To know that computers follow the control flow of input, process, output. To know how to add functionality to products using microcontrollers. To know how to program with crumble micro controller to control a moving vehicle/ robot. To know how to program a block-based coding system. To know how to embed intelligence in a vehicle that responds to inputs. To know how to write, test and debug programmes. To know how to iterate programmes.
Skills	Year 9	<ul style="list-style-type: none"> •Use utensils and small-scale electrical equipment. •Apply heat in different ways. •Use a broader range of preparation techniques and methods when cooking, pastry making, dough formation, portion control, presentation. •Apply graphical drawing techniques (one-point, two-point perspective, orthographic projection). •Apply CAD SketchUp drawing skills. •Apply IT skills in saving and presenting work. •Present to their peers. •Evaluate humanitarian products. •Identify and solve design problems. •Develop ideas using SCAMPER strategy. •Apply iterative design through modelling. •Use craft knife and hot glue gun to cut and adhere card. •To gain structural integrity when modelling. •Select and use equipment to shape and form sheet aluminium: snips, junior, hacksaw, needle file, emery cloth, hole punch, machine vice with pillar drill, buffing wheel. •Thread M6 bar using tap and die. •Combine materials using permanent and semi-permanent fixing methods. •Select and use a range of output components for the vehicle design. •Apply block-based coding system to control a vehicle. •Apply graphical skills to design the chassis of the programmable vehicle. 				
Key Vocab		Preparation, pathogens, binary fission, symptom, diarrhoea, nausea, nutritional excess, deficiency, balance, gelatinisation, factors, organoleptic, demographic, yeast, gluten, fermentation, aeration, folding, raising agent, lamination, commodities, high risk, carbon foot print, global warming, food miles, seasonality, climate change	Isometric, orthographic, oblique, analysis, parallel, floorplan, elevation, 2-dimensional, 3-dimensional, perspective, CAD, render, extrude.	Humanitarian, social, ethical, cultural, sustainability, renewable, non-renewable, carbon footprint, 6Rs, fair trade, iterative design, sketch model, prototype.	Ore, extraction, furnace, ferrous, non-ferrous, alloys, accuracy, quality control checking, pillar drill, coping saw, hazards, precautions, design influences, tessellation, composite materials, scales of production, just in time, quality control.	Software, programming, input, process, output, microcontrollers, sequence, repetition, algorithm, loop, nested loops, motor.