KS3 Design & Technology Curriculum Long Term Planning

		Product Design	Textile Design	Engineering	Food Technology
Year 7	Big Idea	What are hardwoods, softwoods and manufactured boards?	What are natural fibers?	What are ferrous and non-ferrous metals?	How do we prepare and store food safely? How do we have a balanced diet? What are food miles and locally sourced food?
	Key Knowledge and skills	Students learn about different types of timbers and their working and physical properties. Softwood pine, manufactured board MDF & hardboard Students are introduced to specific tools and machinery and learn how to use these safely and correctly. Key Skills Designing – orthographic, one-point perspective, two-point perspective Measuring- steel rules Marking out – try squares Cutting – Coping, Tenon Saws, Scroll Saw Shaping –Hand File/sand paper Pillar Drill	Students learn about natural fibres and where natural fibres come from? Students will be introduced to hazards in the textiles room and how to use specific textiles equipment safely. Key Skills: Making templates Cutting & Pinning – embroidery scissors/fabric scissors Embroidery – needles Applique – templates, pinning, cutting, running stitch Adding colour – fabric paint Filling – polyester stuffing	Students learn about ferrous and non-ferrous metals. Alloys and how alloys are useful in determining the properties of metals. They learn about Pewter and how it is suitable for casting at a lower temperature than other metal alloys. Students are introduced to CAD/CAM and learn how to use the 2D Design drawing package to create a 3D mould. They learn what a sprue is and why there is a need to create a male and female image. Health and safety is visited with regards to working with molten metal and students learn about the casting process while casting their own pewter pendants. Key Skills CAD – 2D design tools Casting Shaping – needle files/wet dry/pillar drill	Students will learn about hygiene and safety in the food room and an introduction to hazards in the kitchen. Students will study the Eatwell Guide and focus on the nutrition and using the commodities from the guide e.g. fruit, vegetables, pasta, bread, fibre foods Introduce to food provenance, seasonality, food labelling and food sources. Skills to be covered are: knife skills, use of the cooker, weighing ingredients, using the hob, rubbing in method, melting method. Practical's include: veg prep, fruit salad, Omelettes, pizza baguettes, pasta salads, Fruit Crumble flapjack bars

	End Point	Accuracy and precision of the block head and jigsaw Students are assessed throughout the unit on: - Health & Safety Tools& Equipment Material Knowledge Independence	Accuracy and precision of 3D soft sculpture product Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Accuracy and precision of pewter keyring Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Ability to demonstrate their nutritional knowledge through the prepared and cooked dish Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence
Year 8	Big Idea	What is sustainable design and the moral/ social impact?	What are synthetic Fibres?	What are thermoforming and thermosetting plastics?	Why do our bodies need energy, and how do we get a balance between calories and energy used?
	Key Knowledge and skills	Students learn about linkages, CAMS and followers and how designers use them. Learn about sustainable design and the issues associated with over packaging and develop an understanding of the 6R's and FSC Learn about ergonomic and anthropometrics and how the data collected can affect design considerations. Key Skills Designing – Modelling Measuring – steel rule Marking out – try square Holding devices – workbench vice	Students learn about synthetic fibres and their working and physical properties. Learn about the pop art movement and use this theme to inspire their own designs around onomatopoeia Develop an understanding for different methods to colour fabric. Key Skills: Measuring – seam allowance Marking – tailors chalk Dying – Transfer inks Printing – Heat transfer Cutting – fabric scissors Shaping – Sewing machine, inserting a zip Embellishment – hand embroidery	Students learn about the properties of acrylic plastic and the difference between thermosetting polymers and thermoplastics. Learn about Biomimicry in design and use the theme to inspire their own products. Students further develop their knowledge of 2D Design through the development of a design inspired by biomicry which is then etched onto acrylic using the laser cutting process Using basic electronic components, students are introduced to solder ring, resistors and electronic circuitry.	Students will learn about: Energy needs and recap Eatwell guide guidelines for a balanced diet. Students will learn about, Food science and baking ingredients, heat transfer methods, Fair trade and food provenance Food safety and storage Practical's will be: Flatbread & Hummus dip Macaroni cheese Bread dough pizza cupcakes and decorating cupcakes Chicken nuggets Chicken fajitas Skills - knife skills, using oven and hob, making sauces, using eggs for coating,

		Cutting - Tennon saw/coping saw/ scroll saw Shaping – hand file, belt sander, sand paper, strip heater, pillar drill twist drill bite & forstner Joining methods - screws	Brought in components – zip Finishing – pinking shears	Learn about input, process and out puts. Key Skills Design – CAD 2D design tools Measuring – steel rule Marking out – try square Holding devices – workbench vice Cutting - Tennon saw Shaping – hand file, belt sander, sand paper, pillar drill twist drill bite & forstner, laser cutter Joining methods – soldering, screws	making dough, using electric whisk, marinades,
	End Point	Accuracy and precision of the sweet dispenser and spatula. Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Accuracy and precision of the storage case. Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Accuracy and precision of the mood light. Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Ability to demonstrate their nutritional knowledge through the prepared and cooked dish Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence
Year 9	Big Idea	What are timber joints?	What are technical textiles?	What do engineers do?	What is international cuisine and how has that impacted our taste?
	Key Knowledge and skills	Students are introduced to a mini NEA task where they must design a product for a client. Students will recap their knowledge on types of timers and learn about different timber joints.	Students are introduced to a mini NEA task where they must design a product for a client. Knowledge on natural and synthetic fibres is revisited. Students learn about technical textiles in the modern world.	Students learn about natural disasters and discover how engineers solve problems in a crisis. Students design and model emergency shelters for a natural disaster.	Students learn about different cuisines from around the world. Recall knowledge of the Eatwell Guide And discuss the tips for healthy eating. Why is food cooked and methods of heat transfer?

		Students are introduced to different methods of presenting ideas both by hand and CAD. Key Skills Client Brief & Task analysis Product research & Specification Different timber joints, half lap, mitre, housing, dovetail joints Deigning – hand, CAD tinkerCAD, modelling Practical Skills Measuring – steel rule Marking – try square, mitre Cutting – tenon saw, coping saw Shaping – Chisel, Jigs on the belt sander Joining – PVA adhesive, clamps Finishing – Sanding, Wet and dry QA	Key Skills Making Techniques - Resist Dying technique - Tie dye, fabric paint, fabric pens, Machine stitching - straight stitch, reverse stitching & machine applique, using patterns, Hems, Seams, fastenings and finishing fabrics. Design Process - Design Brief & Analysis, Mood board, Client Profile, Specification, Colour theory, 2D sketched ideas, Drawing to scale, CAD - Graffiti Creator	Students develop their understanding for the use of electronics to embed intelligence in products. Key skills Measuring – steel rule Marking – Engineers square, Scribe Holding device – engineers vice Cutting – Tenon saw, tap/die internal & external threads Shaping – hand file Finishing – Wet and dry, buffer, polisher, cutting compound	Food safety - food handling and food poisoning bacteria. Food Choices – vegetarian and vegan diets Storing and preparing food safely and use of the temperature probes. Foods affecting food choice and seasonal ingredients. Students will learn about labelling on food, the nutritional Traffic light Practical's Italian Cheesecake Greek Gyros Indian Curry Italian Ragu Pasta from scratch American Rocky Road British Jam Tarts
	End Point	Accuracy and precision of the clock. Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Accuracy and precision of the graffiti cushion. Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Accuracy and precision of the disaster shelter, computer program & survival tool. Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence	Ability to demonstrate their nutritional knowledge through the prepared and cooked dish Students are assessed throughout the unit on:- Health & Safety Tools& Equipment Material Knowledge Independence