Icknield High School 'Raising the Achievement of All' KEY STAGE 3 CURRICULUM MAP Subject: Design & Technology Year:7

WELL-SEQUENCED **CONTEXUALISED/INCLUSIVE** **AMBITIOUS**

	Autumn 1/Spring 2	Autumn 2/Summer 1	Spring 1/Summer 2
Key Questions	• What tools, equipment is needed to work with pine? • What are the different types of wood and their uses, properties and applications • Where does wood come from? • What is plastic? • Why is plastic an important part of every day objects?	• What is the iterative process? • What is the role of template/model making during the designing and manufacturing process	• What tools are used to manipulate a thermoforming plastic? • What is a surface finish ? • Why is a surface finish applied? • Why do you need to evaluate? • How does evaluating help with the iterative design process
Content: 'Know what'	• **Pine bag tag practical activity** – To know a range of tools used to cut and shape wood (coping saw, rasp, sand paper, cordless drill, pillar drill) • **Timber theory** – to know the different types of wood- uses and applications (manmade, softwood, hardwood) • **Plastic theory** – To know the different types of polymers- uses and applications (Thermosetting and thermoforming) • **Work of others** – To Investigate range of designers and identify their style, ethos and work. Designers from past including: Zaha Hadid, Patricia Urquiola, Sir David Adjaye, Phillipe Starck	• **Iterative process** - The importance of the designing process and how it helps with being creative and problem solving. • **Template/model making** – To Identify what a template is and it's importance in the design and manufacture process. Understanding accuracy and repetition used in industry. • **Practical activity** – Know the correct and safe use of tools, machines and equipment used to cut, shape and sand MDF wood. Using a range including: Coping saw, scroll saw, sand paper	• **Acrylic heat treatment** – To know what the material acrylic is and it's application of heating up and deforming the material. Looking into it's thermoforming properties and linking back to the theory covered in previous lessons • **Practical activity** – To know the tools used to cut and shape aluminium tubes. Hack saw, junior hack saw, file and wet & dry paper. • **Surface finishes** – identify the different surface finished applied to timber for protection and aesthetical reasons. • **Evaluation** – To know the different elements to creating a detailed and constructive evaluation based on a final product
Expertise 'Know how'	• **Pine bag tag practical activity -** Safely and accurately use hand tools to shape and waste wood material. Work is carried out in the workshop. • **Timber theory** - Wood theory is delivered through discussion, examples, reading and answering questions to solidify the knowledge. • **Plastic theory** - Plastic theory is delivered through discussion, examples, reading and answering questions to solidify the knowledge. • **Work of others** - Investigating the work of others is carried out through using the internet to research their work and creating mindmaps. Students will analyse their work to gain a deeper understanding using ACCESSFM and know how to incorporate their design style into their own work.	• **Iterative process** - Students are tasked to create 6 design ideas for the base of their roller coaster project based on their chosen designer and their style, work etc. • **Template/model making** Students are tasked to manufacture a 1:1 scale paper template of their wooden base. This template is traced around onto the piece of MDF to help start the manufacturing process. • **Practical activity** - Teacher led demonstration - Students start to manufacture their base in the workshop using a range of tools, equipment and machines. Including the following: Scroll saw, coping saw, sand paper and rasp	• **Acrylic heat treatment** - Teacher led demonstration - Students will use the heat gun to heat up the acrylic and form into their desired shape through the use of the workshop. • **Practical activity** - Teacher led demonstration - Students will use the vice to clamp their work and cut the aluminium tube in half using the correct tool identified. Work is carried out in the workshop. • **Surface finishes** - Teacher led demonstration – students will apply the knowledge of painting and apply paint to the surface of their base in the style of their chosen designers work using a mixture of poster paint and acrylic paint. Work is carried out in the workshop. • **Evaluation -** Students will answer set questions to help evaluate their final product and how successful or unsuccessful they have been at meeting the brief, design spec criteria.
Literacy/ Numeracy/ SMSC/	• Marking and measuring out using steel rule for wooden bag tag • Reading extracts to help with answering questions for the timber and polymer theory	• Reading is included as students are researching designers and work of others • Drawing out 7cm by 7cm squares for the design ideas • The steel rule is used to mark and measure out the base. 20cm by 20cm square.	• Marking and measuring is involved using the steel rule • Reading and answering questions for the evaluation
Disciplinary literacy	• Reading of text on the powerpoint • Independent reading • Reading out loud • Discussion on answers from students • Definition of key words (Tier 2-3) through discussion • Reviewing answers from students and getting students to read out loud • Answering questions based on reading of text based on timbers and the different types/sources	• Class demonstrations by the teacher • Student involvement during demonstrations – questions being asked • Introduction of Tier 2-3 words through practical applications	• Discussion on what evaluation is and its importance • What is the evaluation process • Discussing the questions • Students use the powerpoint/paper to write their evaluation based on the rollercoaster pencil holder • Students will base their answers on a set questions including their own personal opinions • Incorporation of Tier 2-3 words
Careers	• Class discussion on career pathways linking to designing and making and problem solving • Starter activities linked to careers and work of others to show the different designers and their field of expertise	• Class discussion on career pathways linking to designing and making and problem solving • Starter activities linked to careers	• Class discussion on career pathways linking to designing and making with material selection • Starter activities linked to careers

*Due to the carousel, the different terms have been merged into the same column where the changeover would happen