Curriculum map – Design & Technology Y9

YEAR 9	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC(s)	**Timbers – Laser cut Product** Properties of Materials Material Processing Christmas Product Design (nameplate)	**Timbers – Laser cut Product** Christmas product development CAD/CAM Vectorising Bitmaps, Contouring, Relative coordinates, interlocking pieces.	**Sustainability & The Environment** Sustainability Carbon Footprint Product Life Cycle Assessment	**Sustainability & The Environment** 6R's Renewable Energy	**Design Influences Project** Key designer research. Product Design 3D Prototyping	**Design Influences Project** Product Development & Realisation CAD/CAM (Onshape)
What students will know	Know the differences of the different categories of timbers and boards. Understand the role of the Forest Stewardship council. Understand that materials possess different properties Know how timber is processed.	The place of design specifications in the design process. How to vectorise bitmaps. The meaning of relative coordinates Pen colour codes for laser cutter functions such as engraving and cutting How to nest drawings How to export drawings as dxf files	The meaning of the word sustainability. The difference between finite and non-finite materials. The meaning of the term carbon footprint. Understand the reasons for designing in a sustainable way. The stages of a products life cycle/life cycle assessment.	Students will Know the role the 6R's of sustainability play in designing for a sustainable future. Students will learn about a range of different renewable energy sources and how they work. Students will learn the advantages and disadvantages of different types of renewable energy.	Students will learn about the work of the following designers: • Aldo Rossi • Philippe Starck • Vivienne Westwood • Marcel Breuer • William Morris They will learn how to analyse the work of others in detail so that they can identify key features.	Students will learn what a prototype is and the role they play in designing. Students will learn how to use Onshape (or Tinkercad) to create basic shapes and progress to designing their own prototypes.

YEAR 9	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
What students will be able to do	Explain the differences of the different categories of timbers and boards. Identify different types of boards based on description and image Explain the role of the Forest Stewardship council. Explain properties of materials and provide a relevant example. Explain how timber is processed.	Will be able to; use relative coordinates to create shapes, vectorise bitmaps and contour shapes Use CAD CAM to create a layered and interlocking decoration	Rank the carbon footprints in order for different methods of transport. Identify the appropriate 6R component for a range of scenarios. Carry out a life cycle assessment for a product consisting of two or more materials.	Apply the 6R's to a a range of scenarios to identify more sustainable ways of living as well as use the 6Rs of sustainablilty to redesign a product so that it is more environmentally friendly. Students will be able to create a detailed PowerPoint presentation and use it to describe renewable energy sources in detail, including the environmental benefits of using it.	Will be able to research a chosen designer in detail and describe the key features of their work. Use the work of others to influence creativity when designing products. Produce a 3D drawings including oblique, isometric, single, 2-point perspective and exploded	Use Techsoft/ Onshape/Tinkercad to develop 3D prototypes of their own designs.
Assessment (Formative & Summative)	Formative self - assessment HPL review and teacher verbal feedback.	Formative self – assessment Design and needs of specification points. Written activity. HPL review and teacher verbal feedback.	Formative self - assessment/HPL review and teacher verbal feedback.	Formative self – assessment Renewable energy worksheet - self assessed Self assessment of renewable energy presentations and content HPL self review and teacher verbal feedback.	Formative self – assessment of 2-point perspective drawing skills HPL review and teacher verbal feedback. Formative self – assessment of exploded drawing skills/HPL review and teacher verbal feedback.	Formative self - assessment/HPL review and teacher verbal feedback.

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	Summative written assessment test (10 marks) (Timbers including Manufactured boards)		Summative assessment test (10 marks) (Sustainability Carbon Footprint Product Life Cycle Assessment)	Summative end of units assessment test covering Autumn 1, spring 1 and 2 content. (15 Marks)		Summative end of unit assessment test (Designers) Summative end of unit assessment activity. Online/laptop/PC CAD skills to develop a key fob with centered name and hole
Tier 3 vocabulary	Felling De-Barking Seasoning Kiln Stock Forms Automation Physical properties Density Hardness. Toughness: Strength Flexibility	Vectorise Monochrome Contour Bitmap Relative Coordinates Origin Dimensions Silhouette	Finite resource. Non-Finite Emissions Sustainable Landfill Renewable Extraction Pollution	Finite resource. Non-Finite Emissions Sustainable Landfill Renewable Extraction Pollution	Design Influence Design Movement Design Strategies	Rapid prototype
Extended reading opportunities	Timber Based Materials & Processing	CAD/CAM	Product life cycle	Sustainability & Life Cycle Index	Designers, Design Movements & Companies	
Beyond the classroom (Wider reading / Trips)		2D design Tutorial			Onshape Fundamentals online Tutorials	Onshape Fundamentals online Tutorials