

	YEAR 1 (From Sept 2021)	Year 2 (From Sept 2022)	Year 3 (From Sept 2023)
Curriculum Content	<p>Composite 1: Wooden Crane project</p> <p>Component 1:</p> <ul style="list-style-type: none"> Understanding Engineering Sectors <p>Component 2:</p> <ul style="list-style-type: none"> Understand how the principles of Mechanical Engineering are applied in different situations <ul style="list-style-type: none"> Levers / Gears Pulleys Hydraulics Cranes <p>Component 3:</p> <ul style="list-style-type: none"> Understand and apply basic woodworking techniques <ul style="list-style-type: none"> Marking out Cutting Joining Finishing <p>Component 4:</p> <ul style="list-style-type: none"> Understand and apply testing and evaluation techniques 	<p>Composite 1: Metal construction project</p> <p>Component 1:</p> <ul style="list-style-type: none"> Understand and apply the Engineering Design Process <ul style="list-style-type: none"> Apply the stages of the design process for example products. <p>Component 2:</p> <ul style="list-style-type: none"> Develop design skills using hand drawn drawings Develop design skills using CAD Design software <p>Component 3:</p> <ul style="list-style-type: none"> Understand and apply basic metalworking techniques <ul style="list-style-type: none"> Marking out Cutting Finishing <p>Component 4:</p> <ul style="list-style-type: none"> Understand and apply testing and evaluation techniques 	<p>Composite 1: Useless Box project</p> <p>Component 1:</p> <ul style="list-style-type: none"> Understand and apply Technical Drawing standard BS8888 <p>Component 2:</p> <ul style="list-style-type: none"> Understand the essentials of Electronic Engineering. <ul style="list-style-type: none"> Functions of different electronic components Circuit symbols Circuit diagrams <p>Component 3:</p> <ul style="list-style-type: none"> Understand and apply intermediate woodworking techniques in creating a simple wooden box with a hinged lid from a given design drawing <p>Component 4:</p> <ul style="list-style-type: none"> Build a microcontroller / servo circuit <p>Component 5:</p> <ul style="list-style-type: none"> Understand and apply testing and evaluation techniques
Prior knowledge and skills (from previous year / key stage)	<p>Some students will have covered basic material testing in KS2 Science.</p> <p>Although there is the possibility that some students have experienced some Design and Technology work in Primary school, this will be a very small percentage of the cohort, so no prior knowledge is assumed.</p>	<p>In Year 7 students will have covered engineering sectors and mechanical engineering.</p> <p>Students will also have covered simple woodworking skills including sawing, sanding, gluing and finishing.</p> <p>Students will also have experience in evaluating a product.</p>	<p>In year 7 students have studied engineering sectors, and developed basic wood working skills.</p> <p>In year 8 students have studied the engineering design cycle. Students have used CAD design software to draw simple designs. Students have used basic metal cutting and finishing techniques to create a product.</p>
Assessment Objectives	<p>AO1 Understand how to respond to an engineering brief</p> <p>AO2 Select skills and techniques in response to an engineering brief</p> <p>AO3 Apply skills and techniques in response to an engineering brief</p> <p>AO4 Evaluate and review the outcomes of the application of skills and techniques in response to an engineering brief</p>	<p>AO1 Understand how to respond to an engineering brief</p> <p>AO2 Select skills and techniques in response to an engineering brief</p> <p>AO3 Apply skills and techniques in response to an engineering brief</p> <p>AO4 Evaluate and review the outcomes of the application of skills and techniques in response to an engineering brief</p>	<p>AO1 Understand how to respond to an engineering brief</p> <p>AO2 Select skills and techniques in response to an engineering brief</p> <p>AO3 Apply skills and techniques in response to an engineering brief</p> <p>AO4 Evaluate and review the outcomes of the application of skills and techniques in response to an engineering brief</p>
Vocabulary / Key Subject Terminology	<p>Sector / Discipline</p> <p>Product</p> <p>Pulley</p> <p>Gear</p> <p>Lever</p>	<p>CAD</p> <p>Line Type</p> <p>Radius</p> <p>Scale</p> <p>Tolerance</p>	<p>Servo</p> <p>Diode</p> <p>Resistor</p> <p>Solder</p> <p>Microcontroller</p>

	Moment Tenon Saw File	Marking out Scribe Hacksaw	Physical computing British Standard (BS8888) Title Block
Assessment 1	Knowledge retrieval questions	Knowledge retrieval questions	Knowledge retrieval questions
Assessment 2	Mastery tasks (2x)	Mastery tasks (2x)	Mastery tasks (2x)
Cross Curricular Links with other Faculties	<ul style="list-style-type: none"> Science: Moments, levers and gears, fluid pressure. Numeracy: Measurements. Literacy: Articles related to engineering sectors and products. 	<ul style="list-style-type: none"> Numeracy: Measuring and marking out 	<ul style="list-style-type: none"> Numeracy: Measuring and marking out. Science: electrical components and circuit diagrams.
Knowledge Organiser content	<ul style="list-style-type: none"> Engineering Sectors and Products Woodworking tools and techniques. 	<ul style="list-style-type: none"> CAD design metalworking tools and techniques 	<ul style="list-style-type: none"> Electronic components and circuit symbols Components of technical drawings
British Values	<ul style="list-style-type: none"> 'Rule of Law' and why we have rules and regulations in the Engineering Workshop. 'Mutual Respect' and 'Tolerance' will be taught through component 1 as students learn about engineering sectors and job roles. <p>Special attention will be made to promote career opportunities for female and ethnic minority students in engineering.</p> <p>These British Values will be referenced whenever possible in each of the 12 lessons of the rotation.</p>	<ul style="list-style-type: none"> 'Rule of Law' and why we have rules and regulations in the Engineering Workshop. 'Mutual Respect' and 'Tolerance' will be referenced during the knowledge recall quizzes referencing year 1 content. 	<ul style="list-style-type: none"> 'Rule of Law' and why we have rules and regulations in the Engineering Workshop. 'Mutual Respect' and 'Tolerance' will be referenced during the knowledge recall quizzes referencing year 1 content.
Extra-Curricular Offer	Lego Mindstorms Robots	Oh Bot Robot Heads	TBA [Arduino / Raspberry Pi based physical computing project]



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