



Academic Learning Plan
Engineering
 Year 10

Intent: Pupils become engineers of tomorrow who confidently understand materials and their properties. They are encouraged to solve problems and to become critical thinkers, who can work both independently and as part of a team.



	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10 Units	Unit 1: Materials and their properties Pupils will produce three practical projects within this unit, each becoming progressively more difficult and building upon prior knowledge of cutting, shaping and forming. Pupils will learn how to read engineering conventions and be able to create their own drawings by hand and using computer aided design.		Mechanisms, Motion and Electronics Working in team's pupils will produce a model race car. This will enable them to learn key knowledge of mechanisms, motion and electronics.	Engineering in practice Pupils will engineer an educational you for children. They will utilise their prior knowledge and build a portfolio. They will plan for production and make a prototype of their design. Prototypes will be tested and evaluated.		NEA Contextual Challenge As set by the exam board. This will contribute to 40% of the final GCSE grade for pupils and will continue during the first part of year 11.
Content	<ul style="list-style-type: none"> Reading and creating engineering drawings by hand and using CAD Understanding engineering conventions Identify and select appropriate tools. Cut, shape, finish and join timber, metal and acrylic. Know properties of timber, metal and acrylic Creation of drill bit holder, toast rack and coat hook. 		<ul style="list-style-type: none"> Understanding physics in engineering Understanding mathematics in engineering Prototyping 	<ul style="list-style-type: none"> Problem solving Generating initial ideas Writing specifications Technical drawing Production planning Systems components Engineering skills Testing and evaluating 		<ul style="list-style-type: none"> Responding to a brief Generating initial ideas Product Analysis Problem solving Investigating materials
Literacy	<ul style="list-style-type: none"> Command words Engineering tools, processes and equipment Properties of materials Classification of materials 		<ul style="list-style-type: none"> Command words Mechanisms, Motion and Electronic 	<ul style="list-style-type: none"> Critical product analysis Production planning Reflection Evaluation 		<ul style="list-style-type: none"> Critical product analysis Research plan Time plan
Knowledge organiser	Specific to this unit. Available on Teams for pupils.		Specific to this unit. Available on Teams for pupils.	Specific to this unit. Available on Teams for pupils.		Specific to this unit. Available on Teams for pupils.
Assessment	<ul style="list-style-type: none"> Self and Peer evaluation MCQ Practice Exam Questions Practical outcomes 		<ul style="list-style-type: none"> Self and Peer evaluation MCQ Practice Exam Questions Practical outcomes 	<ul style="list-style-type: none"> Self and Peer evaluation MCQ Practice Exam Questions Practical outcomes 		Will be assessed by exam board at the end of the course.
GCSE AO Link (or other) if applicable	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3	AO1 AO2 AO3
Homework	Technical knowledge set weekly		Technical knowledge set weekly	Technical knowledge set weekly		Technical knowledge set weekly
CEIAG	Problem solving; critical thinking; independent working; time keeping; sequencing; analysing; evaluating; comparing; explaining; synthesising; innovating; following instructions.		Working with others; testing and evaluating; problem solving; critical thinking	Problem solving; critical thinking; independent working; time keeping; sequencing; analysing; evaluating; comparing; explaining; synthesising; innovating; planning.		Independent working; time management; autonomy; innovation; reflection; evaluating; researching.