



Year 9 Engineering: Our curriculum intent is: The aim of the Art, Design & Technology Derby Moor Curriculum is to ensure that all pupils are inspired to become creative, to develop their practical skills whilst also understanding the unique properties and qualities that different materials have. We also encourage our pupils to experiment, to invent and to create their own design ideas in our workshops, so they can practise their “hands-on” skills and develop a portfolio of work. At Key Stage 3, our curriculum is structured so pupils can build on skills and knowledge year by year; there are frequent cross curricular links to other subjects and topics plus all of the projects we undertake at Key Stage 3 are strongly linked to the relevant GCSE specifications and to the skills employers require in the world of work today. We offer Engineering at Year 9 so pupils can gain an insight to the subject and the various disciplines and career choices.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Year 9 will study each module on an hourly basis weekly. All pupils will cover all units over the year but depending on availability of workshops and resources, the order may be different to what is shown below. *All projects have elements which link and sequence well together regardless of order - for example designing skills will develop through doing this a number of times and being exposed to different design situations.					
	Lego Man Project Lego Man Project Guide pupils through a basic design process with attention to assembly and the finer details of making.	Lego Man Project Lego Man Project Guide pupils through a basic design process with attention to assembly and the finer details of making.	Architecture Project Pupils work individually on a community project for Derby Moor Academy to design a new school site.	Architecture Project Pupils work individually on a community project for Derby Moor Academy to design a new school site	Types of Engineering This module focuses on six main types of engineering in industry to give pupils an idea of careers in the Engineering sector. Small practical tasks accompany each lesson.	Orthographic drawing project During this project students will learn basic principles of orthographic projection and create both a hand drawn and CAD version.
Subject Specific Skills	Health and Safety within the workshop; interpreting design briefs, Rendering, Designing, making: fine cutting, filing, shaping, sanding, priming, assembling,	Health and Safety within the workshop; interpreting design briefs, Rendering, Designing, making: fine cutting, filing, shaping, sanding, priming, assembling,	Designing and technical drawing skills; elevations, floor plans, sectional. Modelling with papers and boards, using craft knives safely and	Designing and technical drawing skills; elevations, floor plans, sectional. Modelling with papers and boards, using craft knives safely and	Development of designing and technical drawing skills, CAD and research skills.	Students will learn how to use drawing boards, learn key terminology, line thicknesses, iconic products, reverse engineering and tolerances.

	modelling and painting; Evaluating and refining for modifications.	modelling and painting; Evaluating and refining for modifications.	accurately. Self and peer assessment.	accurately. Self and peer assessment.		Students will learn about 3D software (Sketchup) and produce a 3D model and orthographic projection.
Previous Links	National Curriculum link to KS3 and reference to previous skills from KS2 are available to demonstrate how the Design & Technology Curriculum, strengthens students prior learning and develops these skills further in preparation for KS4. Technology Student is a useful website for extra reading on design and technology curriculum.					
Cross-curricular Skills	Maths: measuring materials and working accurately. Science: understanding material properties, environmental issues and COSHH. Art: Increase proficiency in handling a range of materials Computing: use of computer aided design PLTS: independent enquirers, creative thinkers, reflective learners, team workers, self-managers, effective participants. Technology/DT: Designing, making and evaluating					
Post 16 and beyond: The structure of our curriculum in Key Stage 3 flows into the KS4 and KS5 examined content. In Engineering at year 9, we have two routes pupils can take at GCSE, both courses give pupils the skills necessary to study Design & Technology at KS5 and beyond. We provide students with essential skills and knowledge to prepare them for the next step in their lives and equip them with confidence to carry these skills through life wherever that is work or further education. We implement exciting projects that pupils will engage with so it creates a love of learning and helps develop essential life skills even if pupils do not choose GCSE or A Level Design & Technology.						



Year 10 Engineering: Our curriculum intent is: The aim of the Art, Design & Technology Derby Moor Curriculum is to ensure that all pupils are inspired to become creative, to develop their practical skills whilst also understanding the unique properties and qualities that different materials have. We also encourage our pupils to experiment, to invent and to create their own design ideas in our workshops, so they can practise their “hands-on” skills and develop a portfolio of work.						
Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Pupils will work through their coursework units alongside theory for the exam. The exam content is covered initially so pupils feel confident with applying their knowledge to their coursework. Generally, from half term two, there is one hour allocated to theory and two allocated for coursework units however depending on the content covered for coursework units and nature of activities, we will often combine the lessons.					
	R105: Design briefs, design specifications and user requirements (Externally assessed exam unit)	<u>Coursework Unit</u> R107: Developing and presenting engineering designs	<u>Coursework Unit</u> R107: Developing and presenting engineering designs	<u>Coursework Unit</u> R106: Product analysis and research	<u>Coursework Unit</u> R106: Product analysis and research	<u>Coursework Unit</u> R106: Product analysis and research
	R105: Design briefs, design specifications and user requirements (Externally assessed exam unit)					
Subject Specific Skills	On completion of this unit, learners will understand the design cycle, the requirements for a design brief and design specification for the development of a new product and how effective research data is necessary to inform the development of a design solution.	This unit develops techniques in generation, concept development and the communication of design ideas using hand rendering and computer-based presentation techniques including computer aided design software. Learners will generate design ideas using a mixture of detailed hand rendering and computer-based presentation techniques including computer aided design in 2 and 3 dimensions. Learners will gain skills in annotation and labelling techniques, such as showing key features, functions, dimensions, materials, construction/manufacture methods. On completion of this unit, learners will have developed knowledge and understanding of how to communicate design ideas through hand rendering and computer-based techniques.		This unit will enable learners to perform effective product analysis. They will research existing solutions and assess the development of engineered products. Learners will develop dextrous skills and gain practical experience of product assembly and disassembly to appreciate manufacturing processes, design features and materials used. This unit develops learner’s creativity and critical analysis through an understanding of the principles behind good design. They will consider what makes a good product sell by analysing existing solutions. On completion of this unit, learners will understand how to perform effective product analysis and evaluation through research and product assembly and disassembly procedures to appreciate product design features.		
Previous Links	National Curriculum link to KS3 and reference to previous skills from KS2 are available to demonstrate how the Design & Technology Curriculum, strengthens students prior learning and develops these skills further in preparation for KS4. Technology Student is a useful website for extra reading on design and technology curriculum.					



Cross-curricular Skills	Maths: measuring materials and working accurately, technical drawing techniques. Science: understanding material properties, environmental issues and COSHH. Art: Increase proficiency in handling a range of materials and media Computing: use of computer aided design PLTS: independent enquirers, creative thinkers, reflective learners, team workers, self-managers, effective participants. Technology/DT: Designing, making and evaluating Geography: Production methods, globalisation and sustainability issues.
Post 16 and beyond: This course provides pupils with the knowledge, skills and experience to progress further to post-16 study in the subject area; within our school, pupils may wish to progress further onto A Level Design & Technology which allows pupils to go onto various university courses and apprenticeships with practical and engineering disciplines.	



Year 11 Engineering: Our curriculum intent is: The aim of the Art, Design & Technology Derby Moor Curriculum is to ensure that all pupils are inspired to become creative, to develop their practical skills whilst also understanding the unique properties and qualities that different materials have. We also encourage our pupils to experiment, to invent and to create their own design ideas in our workshops, so they can practise their “hands-on” skills and develop a portfolio of work.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Pupils will work through their coursework units alongside theory for the exam. The exam content is still covered throughout the year so pupils feel confident with applying their knowledge to their coursework. Pupils are entered for the externally assessed exam in January of Year 11 and are given a second opportunity to sit depending on the outcome of the first exam. Pupils who are not re-sitting will use the time to work on outstanding coursework units.					
	<u>Coursework Unit</u> Unit R106: Product analysis and research	<u>Coursework Unit</u> Unit R108: 3D design realisation	<u>Coursework Unit</u> Unit R108: 3D design realisation	<u>Coursework Unit</u> Unit R108: 3D design realisation	Exam Unit R105: Design briefs, design specifications and user requirements (Externally assessed exam unit)	
	R105: Design briefs, design specifications and user requirements (Externally assessed exam unit)					
Subject Specific Skills	Learners will be able to perform effective product analysis; research existing solutions & assess the development of engineered products. Learners will develop dextrous skills & gain practical experience of product assembly and disassembly to appreciate manufacturing processes, design features and materials used. This unit develops learner's creativity & critical analysis through an understanding of the principles behind good design. They will consider what makes a good product	This unit requires learners to apply practical skills to produce a prototype product or model using craft-based modelling materials alongside computer-controlled or rapid-prototyping processes. Learners will produce a prototype product in the form of a model and test design ideas in a practical context, to inform further development utilising more complex production processes. Learners will evaluate the prototype making a comparison of the outcome against the product specification and evaluate potential improvements in design such as features, function, materials, aesthetics and ergonomics and make suggestions on improvements to the final product. On completion of this unit, learners will be able to use knowledge gained to apply practical skills in the use of tools and equipment to produce a prototype.			On completion of this unit, learners will understand the design cycle, the requirements for a design brief and design specification for the development of a new product and how effective research data is necessary to inform the development of a design solution.	



	sell by analysing existing solutions. Learners will be able to perform effective product analysis and evaluation through research and product assembly & disassembly procedures to appreciate product design features.		
Previous Links	National Curriculum link to KS3 and reference to previous skills from KS2 are available to demonstrate how the Design & Technology Curriculum, strengthens students prior learning and develops these skills further in preparation for KS4. Technology Student is a useful website for extra reading on design and technology curriculum.		
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Post 16 and beyond: This course provides pupils with the knowledge, skills and experience to progress further to post-16 study in the subject area; within our school, pupils may wish to progress further onto A Level Design & Technology which allows pupils to go onto various university courses and apprenticeships with practical and engineering disciplines.			