

KS3 Curriculum Overview Design Technology

16-week rotation for year 7 & 8 + 3 stand-alone lessons for rollover

Year 7 – skills/ knowledge builder

TERM 1	TOPIC: Materials & Processes	*Key Skills/Subject Links	*Career links & BV
Week 1	Baseline test for Milestone 1 or 2 data Introduction to the workshop, Health and Safety	Key skills/Subject links – Materials & Processes Design: Research, investigating and exploration of materials, properties, characteristics in connection with the user need. Identifying and solving the design brief given problems, communicating how to re-develop the product to be/perform better. Curriculum links <i>GCSE - NEA section A01</i> <i>Engineering Component 1A</i>	Career links Civil, chemical, environmental or mechanical engineer. Furniture designer. Industrial/product designer. Materials engineer. Product manager. Product/process development scientist.
Week 2	Sub topic – Plastic – How to become accuracy Investigation into categories of plastic, properties/ characteristics		
Week 3	Technical processes and safety when manufacturing with plastic		
Week 4	Manufacture of keyring		
Week 5	Manufacture of keyring		
Week 6	Manufacture of keyring with skill assessment and self-assessment		
Week 7	Sub topic – Wood – Working with in a team Investigation into categories of wood, properties/ characteristics		
TERM 2	TOPIC: materials & processes	Make:	British values
Week 1	Technical processes and safety when manufacturing with wood	Select from and demonstrate skill with specialist tools, techniques, processes, equipment and machinery precisely for each of the categories of materials. Select from and develop skills in a wider, more complex range of materials, taking into account their properties. Curriculum links <i>GCSE - NEA section A02</i> <i>Engineering Component 1B, 2C</i> Evaluate: Develop and communicate design ideas including mathematical modelling.	Mutual respect when working in teams for the wood sub-topic. Tolerance of different faith and religion when designing the product which may have a culture influence. Individual liberty students will be able to design and make a product to suit the needs. In group tasks students will have key roles and responsibilities to develop the manufacture of the product The rule of law when in the workshop students
Week 2	Manufacture joint 1 - butt joint		
Week 3	Manufacture joint 2 - dowel joint		
Week 4	Manufacture joint - 3 finger joint		
Week 5	Sub topic – Metal – safety with heat process Investigation in to categories of metal, properties/ characteristics		
Week 6	Technical processes and safety when manufacturing with metal		

		Curriculum links <i>GCSE - NEA section A03 and extended writing within the exam</i> <i>Engineering Component all components must be evaluated to receive a Distinction</i>	will respect the rules and regulations of the machinery, no student should use the machinery with training from staff.
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TERM 3	TOPIC: materials & processes	Technical knowledge:	
Week 1	Manufacture of a pendant/keyring	Understand developments in design and technology using equipment to support understanding.	
Week 2	Manufacture of a pendant/keyring		
Week 3	End of assessment for Milestone 2 or 3 Evaluation of process & achievements		
Week 4	<i>First week of new rotation</i>		
Week 5			
Week 6		Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. Curriculum links <i>GCSE - NEA section A02 and the exam – applying the technical knowledge.</i> <i>Engineering Component 1 A, B, 2 B, C</i> Subject Links: Maths -measurements, scale, tessellation. English – creating step by step guides on a process, communication skills. Art – sketching techniques. PE – strength, students are physical and arm strength can be demanding with in the manufacture stage.	

TERM 4	TOPIC:		
Week 1			
Week 2			
Week 3			
Week 4			
Week 5			
Week 6			

TERM 5	TOPIC:		
Week 1			
Week 2			
Week 3			
Week 4			

Week 5			
TERM 6	Topic:		
Week 1			
Week 2			
Week 3			
Week 4			
Rollover			
Week 5	Technical drawing isometric/one-point perspective	Design; Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools. Make: select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture Curriculum links GCSE - NEA section A02 and section C of the exam. Engineering - Component 1B Subject link Maths – angles, measurements, scale. Art – drawing skills	
Week 6	Technical drawing sketching skills		
Week 7	CAD – 2D Design		

YEAR 8 – SMART/CADCAM Night Light Project

TERM 1	TOPIC: Night light project	*Key Skills/Subject Links	*Career links & BV
Week 1	Baseline assessment – Milestone 1 or 2 data Brief and research	Maths – 2D and 3D shape measuring Literacy - research skills, referencing, IT skills – design programs Subject link - links to GCSE, CAD/CAM, skills based, supporting the NEA, design movements exam topics	To promote greater awareness for students about the world of work, the development of key skills and employability.
Week 2	Specification		
Week 3	Design movements – looking at different design movements to influence design		
Week 4	Design ideas – theme culture/design movements		
Week 5	Design Development, to enhance and develop ideas to create something new and original		
Week 6	CAD - 2D design, designing the product		
Week 7	CAD - 2D design, designing the product		
TERM 2	TOPIC: Night light project	Literacy – research skills Maths – money, measuring. Subject link - links to GCSE, Exam based questions, NEA practical skills and knowledge	- To relate skills attitudes, concepts and knowledge learned in school to applications in the wider world. - To promote greater awareness for students about the world of work, the development of key skills and employability.
Week 1	Wood properties		
Week 2	Mock-up and prototyping – using card to assess suitability and links to specification		
Week 3	Costings – to work out product viability and profit margins for product.		
Week 4	Joints -variety of joints including butt joint, dowel and finger joints		
Week 5	Assembly of product Finishes – looking at a variety of wood finishes to create high quality product		
Week 6	Circuits – soldering skills and safety – what is a good joint and practice soldering		
TERM 3	TOPIC: Night light project	Science – circuits Literacy – language to justify choices Subject link - links to GCSE, supporting the NEA,	To promote greater awareness for students about the world of work, the development of key skills and employability.
Week 1	Circuits – learn about components used and soldering skills		
Week 2	Circuits – learn about components used and soldering skills		
Week 3	End of rotation assessment for milestone 2 or 3 Evaluation		
Week 4			
Week 5			
Week 6			
TERM 4	TOPIC:		
Week 1			
Week 2			
Week 3			
Week 4			
Week 5			
Week 6			
TERM 5	TOPIC:		
Week 1			
Week 2			

Week 3			
Week 4			
Week 5			
TERM 6	Topic:		
Week 1			
Week 2			
Week 3			
Week 4			
Rollover			
Week 5	Drawing skills – shading and textures	Art – drawing skills Maths – Angles, measuring, shape <u>Subject link – Drawing presentation, NEA</u>	
Week 6	Drawing skills – isometric		
Week 7	Drawing skills – one-point perspective		

Year 9 Foundation Course

TERM 1	TOPIC: 3D printing CAD/CAM	*Key Skills/Subject Links	*Career links & BV
Week 1	Baseline for Milestone 1 Introduction to course TinkerCAD log on and basics	IT skill - using specific design programs. Maths -working to dimensions, measuring, scale. Literacy – Instructional language. <u>Subject link</u> - links to GCSE, CAD/CAM, skills based, production methods, supporting the NEA	To promote greater awareness for students about the world of work, the development of key skills and employability
Week 2	TinkerCAD skills lesson		
Week 3	Specification		
Week 4	3D printer demo, Design a creative mould which can be place in a vacuum former to make a chocolate mould – using TinkerCAD		
Week 5	Design a creative mould which can be place in a vacuum former to make a chocolate mould – using TinkerCAD		
Week 6	Design a creative mould which can be place in a vacuum former to make a chocolate mould – using TinkerCAD		
Week 7	Vacuum forming lesson Evaluation		
TERM 2	TOPIC: 2D Design bookends	Maths – 2D and 3D shape measuring Literacy - research skills, referencing, IT skills – design programs <u>Subject link</u> - links to GCSE, CAD/CAM, skills based, production methods, supporting the NEA, scales of production exam topics	To promote greater awareness for students about the world of work, the development of key skills and employability.
Week 1	Design brief, specification		
Week 2	Design ideas		
Week 3	Joints research Scales of production		
Week 4	Design a creative centre piece for book ends using 2D design		
Week 5	Design a creative centre piece for book ends using 2D design		
Week 6	Use of Jigs, making a jig		
TERM 3	TOPIC: Bookends project	Maths - Angles, measuring Literacy – production diary. Evaluation and justification, backing up points with evidence. <u>Subject link</u> - links to GCSE, skills based, production methods, supporting the NEA	To promote greater awareness for students about the world of work, the development of key skills and employability.
Week 1	Make bookends Create dowel joints and make a 90 degrees angle which will fit the 3D printed centre piece.		
Week 2	Make bookends Create dowel joints and make a 90 degrees angle which will fit the 3D printed centre piece		
Week 3	Attach 3D printer centre piece		
Week 4	Attach 3D printer centre piece		
Week 5	Milestone 2 assessment Assembly of product		
Week 6	Evaluation		
TERM 4	TOPIC: Material Properties	Literacy – research skills Science – polymers, chemical reactions, smart materials Art – textiles <u>Subject link</u> - links to GCSE, Exam based questions	To relate skills attitudes, concepts and knowledge learned in school to applications in the wider world.
Week 1	Introduction of properties How properties are different, hardness, strength, etc. Woods		
Week 2	Polymers		
Week 3	Papers and cards		
Week 4	Textiles		
Week 5	Smart materials		
Week 6	Metals		

TERM 5	TOPIC: Graphics superhero packaging	Art – colour work Maths – nets, shapes, <u>Subject link</u> - links to GCSE, Exam based questions, NEA, materials knowledge	To promote greater awareness for students about the world of work, the development of key skills and employability.
Week 1	Introduction and research		
Week 2	Colour work and fonts		
Week 3	Logos		
Week 4	End of year assessment – Milestone 3 Character development		
Week 5	Nets London landmark activity		
TERM 6	Topic: Superhero packaging	PSHE – Recycling and the environment Maths – measuring, shape Art – colour work <u>Subject link</u> - links to GCSE, Exam based questions, materials knowledge	To promote awareness and understanding of work, industry, the economy and community
Week 1	Layout		
Week 2	Making card backing		
Week 3	6 R's Packaging and recycling		
Week 4	Vacuum forming Evaluation		
Rollover			
Week 5	Drawing skills – two-point perspective	Art – drawing skills Maths – Angles, measuring, shape <u>Subject link</u> – Drawing presentation, NEA	
Week 6	Drawing skills – Orthographic		
Week 7	Drawing skills - isometric		