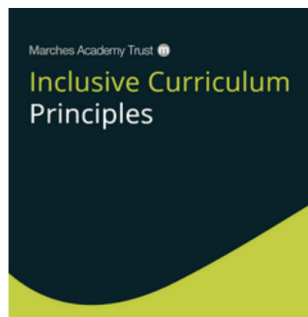
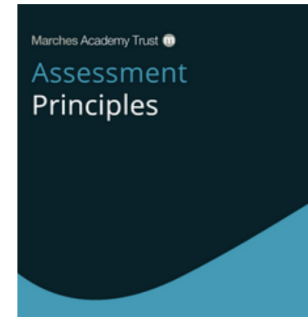
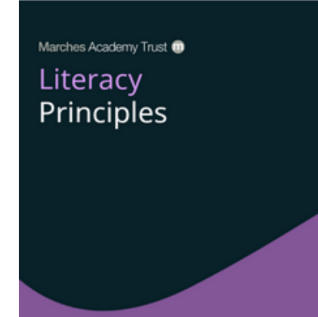


2026-2028 CURRICULUM



What is our curriculum development work focused on?

Building and strengthening the foundation offer through:

1. KS2-KS5 sequencing (disciplinary and substantive knowledge).
2. Vocabulary- tier 2 and 3
3. Disciplinary Literacy

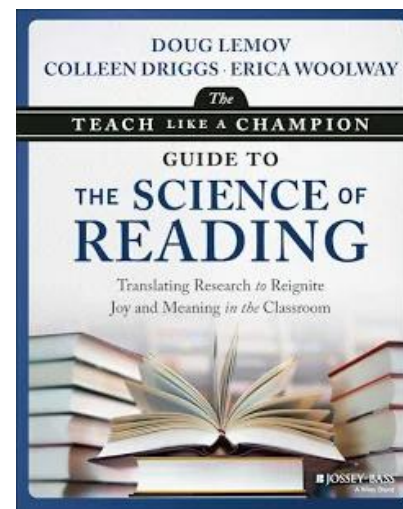
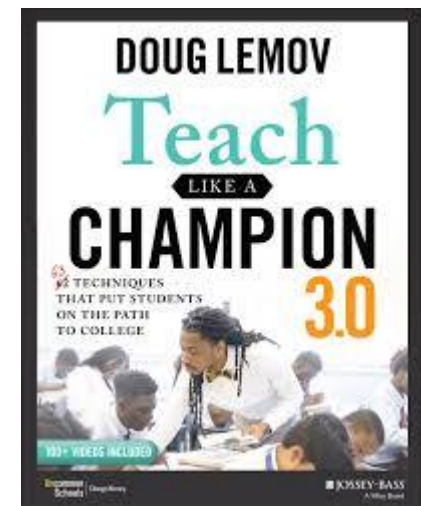
Oracy: threaded through all 3 areas. Can students speak it?

Implemented through:

- ELET (TLAC + Science of Reading strategies)

SJT Every Lesson Every Time

1 step at a time Curriculum planning is crafted to ensure low cognitive load for all	<ul style="list-style-type: none"> • Accessible resources : clear, inclusive and adapted materials. • Regulation breaks built into lesson plans as appropriate. • Clear and concise language for instruction. • Chunk instructions : clear, manageable steps.
2 consistent routines (entrance and exit) A calm and consistent classroom environment for all	<ul style="list-style-type: none"> • Entrance routine: students invited in, meet and greet, equipment out. • Do now: based on retrieval and visible on entry. • High expectations: established and repeated throughout. • Exit routine: 2 minutes before the bell- students stand behind chairs before dismissal. Circulate the room to assess standards of work.
3 checks for understanding All are made to think hard, and AFL is used to inform future adaption	<ul style="list-style-type: none"> • Lesson planning crafts opportunities for AFL to assess learning. E.g. 3,2,1 show me boards, cold call, active observation, exit tickets. • Circulate: monitor behaviour, presentation, literacy and address misconceptions. • Adapt: through re-teaching, giving feedback, scaffolding or challenge. • Respond: students reflect/act on the feedback live in lessons.
Look 4 the scaffold Modelling and support for all to be successful	<ul style="list-style-type: none"> • Informed by assessment of current knowledge and skill. • Scaffold: gradually taken away. I do, we do, you do. • Model and WAGOLL: show what success looks like from the start.
5 foundational skills All lessons are planned to adapt to literacy and numeracy data utilising foundational skills were appropriate.	<ul style="list-style-type: none"> • Academic language: Key 3 explicit vocabulary identified, displayed and checked for understanding. • Communication: speaking and listening opportunities scaffold talk and promote oracy. • Reading: AIR and FASE techniques are used to aid reading fluency and comprehension. • Writing: focus on SPaG, handwriting and disciplinary writing skills. • Numeracy: planning for numeracy application across the curriculum.



What academic research underpins our curriculum work?

IMPROVING LITERACY IN SECONDARY SCHOOLS

Summary of recommendations

1

Prioritise 'disciplinary literacy' across the curriculum



- Literacy is key to learning across all subjects in secondary school and a strong predictor of outcomes in later life.
- Disciplinary literacy is an approach to improving literacy across the curriculum that emphasises the importance of subject specific support.
- All teachers should be supported to understand how to teach students to read, write and communicate effectively in their subjects.
- School leaders can help teachers by ensuring training related to literacy prioritises subject specificity over general approaches.

2

Provide targeted vocabulary instruction in every subject



- Teachers in every subject should provide explicit vocabulary instruction to help students access and use academic language.
- Effective approaches, including those related to etymology and morphology, will help students remember new words and make connections between words.
- Teachers should prioritise teaching Tier 2 and 3 vocabulary, which students are unlikely to encounter in everyday speech.
- Teachers and subject leaders should consider which words and phrases to teach as part of curriculum planning.

3

Develop students' ability to read complex academic texts



- Training focused on teaching reading is likely to help secondary school teachers teach their subject more effectively.
- To comprehend complex texts, students need to actively engage with what they are reading and use their existing subject knowledge.
- Reading strategies, such as activating prior knowledge, prediction and questioning can improve students' comprehension.
- Strategies can be introduced through modelling and group work, before support is gradually removed to promote independence.

4

Break down complex writing tasks



- Writing is challenging and students in every subject will benefit from explicit instruction in how to improve.
- Teachers can break writing down into planning, monitoring and evaluation, and can support students by modelling each step.
- Targeted support should be provided to students who struggle to write fluently, as this may affect writing quality.
- Teachers can use a variety of approaches, including collaborative and paired writing, to motivate students to write.

5

Combine writing instruction with reading in every subject



- Combining reading activities and writing instruction is likely to improve students' skills in both, compared to a less balanced approach.
- Reading helps students gain knowledge, which leads to better writing, whilst writing can deepen students' understanding of ideas.
- Students should be taught to recognise features, aims and conventions of good writing within each subject.
- Teaching spelling, grammar and punctuation explicitly can improve students' writing, particularly when focused on meaning.

6

Provide opportunities for structured talk



- Talk matters: both in its own right and because of its impact on other aspects of learning.
- High quality talk is typically well-structured and guided by teachers.
- Accountable talk is a useful framework to ensure talk is high quality, and emphasises how talk can be subject specific.
- Teachers can support students by modeling high quality talk, for example including key vocabulary and metacognitive reflection.

7

Provide high quality literacy interventions for struggling students



- Schools should expect and proactively plan to support students with the weakest levels of literacy, particularly in Year 7.
- Developing a model of tiered support, which increases in intensity in line with need is a promising approach.
- Assessment should be used to match students to appropriate types of intervention, and to monitor the impact of interventions.
- Creating a co-ordinated system of support is a significant challenge requiring both specialist input and whole school leadership.



Creativity - Design Technology

Our vision

- Our vision is to prepare and motivate our students for a rapidly changing world by encouraging them in critical thinking skills, creativity, imagination and independence. Ultimately, we aim to foster skills that create problem solvers, critically looking at their made environment and defining needs before deploying resources to solve real world issues. We aim to instill these vital life skills, be they future designer or simply consumers, in the form of a thorough and diverse curriculum.

Year 7 Design & Technology

What is my Learning Journey this year?

Bigger Picture Questions:-

Understanding workshop principles
Consider how to adhere to safe working practices.
The safe use of workshop tools and equipment to creatively design and construct
Consider how to manipulate various materials to make 2D designs into 3D objects



What to expect...

Content – Be taught a range of presentation and communication techniques to improve your designing. Also thinking out our responsibility as a designer and the impact of products on the environment.

Areas of exploration – Designing, environmental impact, technology in society.

Assessment – Homework. Assessment of skills BRAGged



#realworldready:

- Exploring job roles in D&T
- Working to a relatable Design Brief.

Skills Ladder

How will you step up your skills this term?



Skills

- ☐ Planning for safe and accurate manufacture
- ☐ Applying practical skills and knowledge
- ☐ Understanding contexts, users and purposes
- ☐ Generating, developing, modelling and communicating ideas
- ☐ Evaluating Own ideas and products
- ☐ Evaluating existing products
- ☐ Looking at key designs and designers
- ☐ Understanding how products work and function

START

Health & Safety Moody lights

Autumn

What to expect...

Content – The importance and relevance of workshop safety to ensure you stay safe and produce quality outcomes. How products use interactivity to improve functionality. Using CAD/CAM to solve problems and make products. Modelling and prototyping circuits to be introduced into products.

Areas of exploration – Environment; safety signs, floor markings & stop switches. Training, to ensure the safe use of hand tools and machinery. Basic workshop tools and equipment to create a key ring in various materials, exploration of timbers and metals.

Assessment–

Health and Safety skills, Homework assessment of skills BRAGged

Core design skills Eco design

Winter

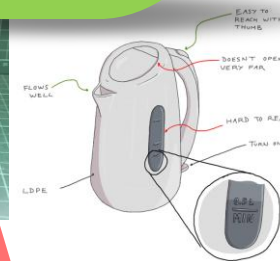


What to expect...

Content – Also applying these skills to design and make a disk tidy in the style of Alessi.

Areas of exploration – Forming and manipulating materials, packaging, product evolution, designers and design movements, CAD/CAM

Assessment– Homework. Assessment of skills BRAGged. End of unit written practical assessment.

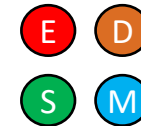


Flipped Learning Tasks researching materials. Creating a knowledge organizer.

Tic-tac-toe Designer desk tidy

Summer

End of Year Assessment



Brag marking of key assessment pieces throughout.

Flipped Learning Tasks researching key designers and Primary research into organisers.

Home Learning

Produce a plan of manufacture detailing how you have made your dinosaurs. Include measurements, instructions and diagrams at each stage

Year 7 D&T Curriculum Overview

Content Topic/unit name, enquiry question	Disciplinary Knowledge (Skills) Actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for a topic, which is connected into a careful sequence of learning	Prior Learning (KS2)	Future learning (KS3)
<p>Transition Health and Safety introduction (mainly make)</p> <p>HOME LEARNING</p> <p>Materials focus – Timbers (Technical knowledge) Dinosaur</p> <p>7 Weeks</p>	<p>MAKING (A) Practical skills and techniques</p> <p>MAKING (B) Planning for manufacture</p> <p>TECHNICAL KNOWLEDGE Making products work</p>	<p>MA 1 - produce ordered sequences and schedules for manufacturing products they design, detailing resources required</p> <p>MB 1 - make use of specialist equipment to mark out materials</p> <p>MB11-apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods</p> <p>MB 9 - use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely •</p> <p>MB 6 - recognise when it is necessary to develop a new skill or technique</p> <p>TK1-how to classify materials by structure e.g. hard woods, soft woods, ferrous and non- ferrous, thermoplastic and thermosetting plastics</p> <p>TK2-about the physical properties of materials e.g. grain, brittleness</p> <p>TK18-understand the properties of materials, including smart materials, and how they can be used to advantage</p>	<ul style="list-style-type: none"> Selecting and using tools Selecting and manipulating materials Generating and developing ideas 	<ul style="list-style-type: none"> Working safely in workshops. Learning how to risk assess and improve outcomes through quality control. Students should know more about timers Students should know more about papers and boards.
<p>Moody lights (mainly Design) Responsive lighting product for a counter display, Night light or bedside light for a child. Mood lighting for restaurant tables.</p> <p>6 weeks</p>	<p>TECHNICAL KNOWLEDGE Making products work</p>	<p>DA 1 - develop detailed design specifications to guide their thinking</p> <p>DA 9 - take creative risks when making design decisions</p> <p>DA10 - consider additional factors such as ergonomics, anthropometrics or dietary needs</p> <p>DB 1 - use 2D and begin to use 3D CAD packages to model their ideas</p> <p>DB 9 - develop and communicate design ideas using annotated sketches</p> <p>EB1-product through disassembly to determine how they are constructed and function</p> <p>TK1-how to classify materials by structure e.g. hard woods, soft woods, ferrous and non- ferrous, thermoplastic and thermosetting plastics</p> <p>TK2-about the physical properties of materials e.g. grain, brittleness</p> <p>TK 3 - how more advanced electrical and electronic systems can be powered and used in their products</p> <p>TK 4 - how to use simple electronic circuits incorporating inputs and outputs</p>	<ul style="list-style-type: none"> Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. Experience of electrical components including buzzers, switches, LEDs, resistors and batteries. 	<ul style="list-style-type: none"> Students can design a product to incorporate a circuit. Following instruction students learn soldering techniques to complete a PCB circuit for a particular purpose. The names and characteristics of electrical components and their associated symbols.
<p>Core designing skills (mainly Design)</p> <p>Technology in Society - Mobile Phone (Technical knowledge)</p> <p>5 weeks</p>	<p>DESIGNING (A) understanding contexts users and purposes</p> <p>EVALUATING (A) existing products.</p>	<p>DB 9 - develop and communicate design ideas using annotated sketches</p> <p>DB 10 - produce 3D models to develop and communicate ideas</p> <p>EB 2 - the positive and negative impact that products can have in the wider world</p> <p>EB3-products that they are less familiar with using themselves</p> <p>EB4-products considering life cycle analysis</p> <p>EB 7 - new and emerging technologies</p>	<ul style="list-style-type: none"> Basic 2D drawing skills are useful but not essential. Understanding of aspects to annotate against are useful, but can be done afterwards. <p>Product Design: Eco Design unit to give some context for the impact of designing everyday products.</p>	<p>Looking at how products have evolved and why this is. Suggesting how products could be developed considering sustainable and environmental impact</p>
<p>Technology in society - Eco Design- (technical Knowledge)</p> <p>Materials focus – Polymers (Technical knowledge)</p> <p>6 weeks</p>	<p>DESIGNING (A) Understanding contexts, users and purposes</p> <p>DESIGNING (B) Generating, developing, modelling and communicating ideas</p> <p>EVALUATING (B) Existing products</p> <p>TECHNICAL KNOWLEDGE Making products work</p>	<p>DA 3 - identify and solve their own design problems</p> <p>DB 1 - use 2D and begin to use 3D CAD packages to model their ideas</p> <p>TK 3 - how more advanced electrical and electronic systems can be powered and used in their products</p> <p>TK 4 - how to use simple electronic circuits incorporating inputs and outputs</p> <p>TK18-understand the properties of materials, including smart materials, and how they can be used to advantage</p> <p>TK1-how to classify materials by structure e.g. hard woods, soft woods, ferrous and non- ferrous, thermoplastic and thermosetting plastics</p> <p>DB 10 - produce 3D models to develop and communicate ideas</p> <p>DA 11 - analyse where human values may conflict and compromise has to be achieved</p> <p>EB5-how products can be developed considering the concept of 'cradle to grave'</p> <p>EB2-the positive and negative impact that products can have in the wider world</p>	<ul style="list-style-type: none"> Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. Experience of electrical components including buzzers, switches, LEDs, resistors and batteries. <p>understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p>	<ul style="list-style-type: none"> Incorporating interactivity into products. Soldering circuits. Planning for manufacture Self evaluative skills Gaining feedback from others Appreciating electronic products Appreciation of systems design. Names of electronic components, their use and functions Students should know more about metals.

Year 7 D&T Curriculum Overview

Content Topic/unit name, enquiry question	Disciplinary Knowledge (Skills) Actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for a topic, which is connected into a careful sequence of learning	Prior Learning (KS2)	Future learning (KS3)
Tic tac toe (Technical knowledge) Materials focus – Papers and boards (Technical knowledge) 6 weeks	DESIGNING (A) Understanding contexts, users and purposes DESIGNING (B) Generating, developing, modelling and communicating ideas EVALUATING (B) Existing products TECHNICAL KNOWLEDGE Making products work	DA 3 - identify and solve their own design problems DB 1 - use 2D and begin to use 3D CAD packages to model their ideas TK 3 - how more advanced electrical and electronic systems can be powered and used in their products TK 4 - how to use simple electronic circuits incorporating inputs and outputs TK18-understand the properties of materials, including smart materials, and how they can be used to advantage TK1-how to classify materials by structure e.g. hard woods, soft woods, ferrous and non- ferrous, thermoplastic and thermosetting plastics DB 10 - produce 3D models to develop and communicate ideas DA 11 - analyse where human values may conflict and compromise has to be achieved EB5-how products can be developed considering the concept of 'cradle to grave' EB2-the positive and negative impact that products can have in the wider world	<ul style="list-style-type: none"> Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. Experience of electrical components including buzzers, switches, LEDs, resistors and batteries. <p>understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p>	<ul style="list-style-type: none"> Incorporating interactivity into products. Soldering circuits. Planning for manufacture Self evaluative skills Gaining feedback from others Appreciating electronic products Appreciation of systems design. Names of electronic components, their use and functions Students should know more about metals.
Designer Desk Tidy (Design and Make) Materials focus – Metals (Technical knowledge) 5 weeks	EVALUTING (A) Own ideas and products DESIGNING (B) understanding contexts users and purposes MAKING (A) Practical skills and techniques MAKING (B) Planning for manufacture EVALUATING (C) Key events and designers	DB 1 - use 2D and begin to use 3D CAD packages to model their ideas DB 7 - use a variety of approaches, for example biomimicry and user-centered design, to generate creative ideas and avoid stereotypical responses DB 9 - develop and communicate design ideas using annotated sketches MB 2 - use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives MB 4 - investigate and develop skills in modifying the appearance of materials . EA 1 - evaluate their products against their original specification and identify ways of improving them EA 2 - actively involve others in the testing of their products EC 1 - about an increasing range of designers, engineers, chefs, technologists and manufacturers and be able to relate their products to their own designing and making	Students may have past experience of design and make cycle or iterative process. Looking at famous or iconic products or designers	<ul style="list-style-type: none"> Iterative designing around a context. CAD/CAM skills Knowing influential designers, design movements and products Students explore the importance of designing an authentic, real-context product for a client to meet their specific needs, outlined in a design specification.

Year 7 D&T Curriculum Unit Core Elements

Lesson title/enquiry	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1. Introduction to the workshop environment.	Assume no prior knowledge as students need to be aware of the expectations, dangers and be SJT ready in D&T.	Introduction to the workshop. Risk assessments – hazard x likelihood= risk factor Minimising risks Tool identification and identifying hazards including signage.
2. Using template and manipulating woods Focus on Timbers	Can create basic models Have an understanding of timbers, origins and uses.	Know the term provenance and origins of timber products how to classify timbers by structure e.g. hard woods, soft wood with specific examples understand the properties of timbers and how they can be used to advantage Know how they are converted and into what stock forms Know common manufacturing, joining and finishing techniques.. Know the term quality control and methods of improving quality. Identify, select and apply correct tool use for timbers. use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely – pillar drill, sander, coping saw, glass paper.
3. Manufacturing the wooden body	May have used tools to mark out, manipulate and transform timbers.	Identify, select and apply correct tool use for timbers. use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely – pillar drill, sander, coping saw, glass paper.
4. Manufacturing the plastic dinosaur head	May have used tools to mark out, manipulate and transform polymers.	Identify, select and apply correct tool use for Polymers. use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely – laminating, tenso, scroll saw, files, wet and dry paper
5. Manufacturing the metal dinosaur legs.	May have used tools to mark out, manipulate and transform metals .	Identify, select and apply correct tool use for Metals. use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely – pillar drill, hack saw, tin snips, files
6. Manufacturing the metal dinosaur legs.	May have used tools to mark out, manipulate and transform metals .	Identify, select and apply correct tool use for Metals. use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely – pillar drill, hack saw, tin snips, files
7. Adaptation week	N/A	Use for any lost curriculum time(i.e. finishing units), MAD time, Feedback and assessment.

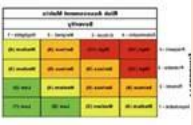
Lesson title/enquiry	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1. Electronic components <ul style="list-style-type: none"> • Input, process, outputs • Resistors • Circuit diagrams 	Students should have some basic understanding of electronics.	<ul style="list-style-type: none"> • Circuit symbols and using the ability to link them to design circuit diagrams. • Knowledge of what a component looks like, its symbol and function. • Principles of Input, Process and Outputs. • Resistors, their functions and the ability to identify different values.
2. How to solder and creating the circuit kit	Students will be familiar with working with materials such as corrugated cardboard to create simple shapes.	<ul style="list-style-type: none"> • Electronic components – symbols, appearance and functions. • Inputs, Process and Outputs. • Resistors, functions and identification of values using colour charts. • Designing circuits in Series and Parallel. • Populating a PCB board with through hole components
3. Designing and developing the shade. Continuation of soldering.	Students should have experience of simple circuitry and also modelling ideas and concepts	<ul style="list-style-type: none"> • The ability to then visualise actual products of which the designed circuits can be embedded into. • Creating a range of ideas and communicating the key features through annotation. • Developing a card prototype using craft knives
4. Opportunity to create the shade in CAD or refine through a final prototype and black card Continuation of soldering.	Most students should have had some experience of CAD at primary school	use CAD and related software packages to validate their designs in advance of manufacture use mathematical modelling to indicate likely performance before using physical materials and components give oral and digital presentations and use computer-based tools
5. Opportunity to finish or refine- circuits, lamps or CAD.	N/A see above	N/A see other weeks
6. Final assembly + Continuation of soldering.	Assembly of components Joining materials Applying finishes from materials	apply a range of finishing techniques, including those from art and design use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture
7. Adaptation week	N/A	Use for any lost curriculum time(i.e. finishing units), MAD time, Feedback and assessment.

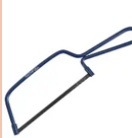
Lesson title/enquiry	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1. One and two point perspective Linework, shading and rendering.	<ul style="list-style-type: none"> Basic 2D drawing skills are useful but not essential. Perspective and how we view the world. What makes something look convincing/real? 	What defines perspective drawing? – spot the features. Vanishing points Horizon lines How to draw lines leading back to vanishing points. One and two point perspective. Thick and thin lines Shading on 3 faces- light to shade. Mimicking materials.
2. Isometric drawing – how to use an isosketch – drawing an isometric dice	Building on perspective techniques previously introduced. Idea of fitting complex shapes in boxes. Angles and measurements.	What defines isometric drawing? – spot the features. How is it different, what are the advantages over 1 and 2 point. Use of grid paper to draw basic shapes. Crating – a how to Features of the isosketch- bump tools, corner radii, ellipse tools, orientation Practice of mark making and orientation- student led activity with scaffolded examples. Practice first product drawing with isosketch- dice.
3. Birdhouse, cup using an isosketch	Developing knowledge of the features and traits of an isosketch and how they can be built upon to add complexity to isometric drawings.	Extending and crating to accommodate bigger drawings Planning sketches, alignment and placement Faces and axis Use of ellipse tools
4. Toaster using isosketch, annotation design ideas and adding relevant information.	Understanding of aspects to annotate against are useful, but can be done afterwards. How to communicate feature such as assembly and movement in drawings.	Drawing on all previous features and skills with isosketch and addition of mouth tool and creating bigger crates for drawings. What is design communication? Why is it important? ACCESS FM and adding annotation and communication.
5. crating and sketching.	Isometric and two point leading to free drawing of objects	Breaking objects down in to simple forms. Creates around existing objects. Free crating and drawing objects.

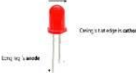
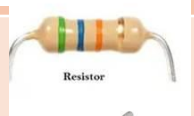
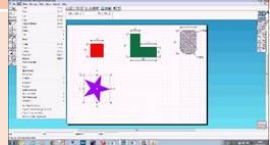
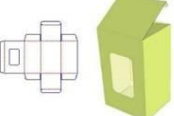
Year 7 D&T Curriculum Unit Core Elements

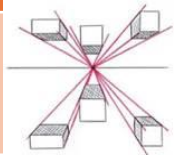
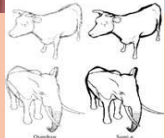
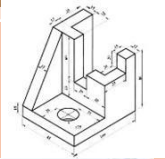
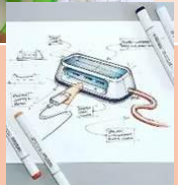
Lesson title/enquiry	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1. Focus on plastics. Demonstrations on recycling HDPE and forming polymers.	Recycling Waste disposal Environmental impact	Know how to classify materials by structure e.g. thermoplastic and thermosetting Know about the physical properties of materials e.g. insulator, durable Identify the province and structures of polymers Know stock forms and identifying features e.g. number chart.
2. Technology in society- 6 R's and eco design challenge.	Know ethical and moral responsibilities when designing and consuming products.	Understanding implications of designing products in the real world. Environmental issues affecting every product being produced. Using sketches and annotation to help communicate solutions.
3. Life cycle analyses	Being environmentally conscious Consumer choices	the positive and negative impact that products can have in the wider world Show how products consider life cycle analysis Identify how products can be developed considering the concept of 'cradle to grave' the concept of circular economy approaches in relation to product development and consumption

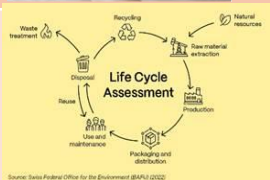
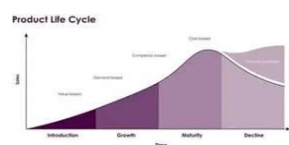
Lesson title/enquiry	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1. 2D design tools introduction, designing / sketching out their design and concept for the desk tidy.	<ul style="list-style-type: none"> Use of CAD packages at primary school 	<p>Students will be introduced to the main tools and features of 2D design tools.</p> <p>They will be taught how to set up files, draw to scale and/or other similar settings.</p> <p>2D design tools and features covered: page setup, grid setup, navigation tools, undo issues, line and spline tools, trim and delete, editing nodes and handles to improve work.</p>
2. Designing the form for the base using 2D CAD	<p>Introduction to 2D design tools</p> <p>Sketch work</p> <p>Communicating ideas</p> <p>Design icons</p>	<p>Students will generate a concept for their pencil holder in the Alessi style. They will take a sketched concept and refine this idea using CAD. This will form the baseplate component.</p> <p>Transfer of ideas to CAD to better control parameters of the design .</p> <p>How to sketch elevations</p> <p>Taking a sketch and converting it to a CAD Design</p> <p>Using CAM (laser cutter) to cut out the design</p>
3 how to mark out and manufacture	<p>Earlier unit and key workshop processes of:</p> <p>Marking out</p> <p>Cutting and shaping</p> <p>Finishing</p>	<p>Moving from CAD into the workshop students will mark out, cut and form and drill an accurate array of blind holes.</p> <p>Using templates to mark out for greater accuracy.</p> <p>Quality control measures to improve outcomes.</p> <p>Safe use of machinery including cordless and bench drills, disk sanders and hand tools.</p> <p>Marking and manufacture to specific criteria (size, array and depth of holes for pen holder component).</p>
4. Finishes of materials	<p>Earlier unit and key workshop processes of:</p> <p>Marking out</p> <p>Cutting and shaping</p> <p>Finishing</p>	<p>Students will work on both components</p> <p>How finishes improve functionality and aesthetics.</p> <p>Materials and their finishes</p> <p>Applying a stain to the MDF pen holder.</p>
5. Materials focus - Metals	<p>Have an understanding of metals, origins and uses.</p>	<p>Know the term provenance and origins of metal products .</p> <p>how to classify metals by characteristics e.g. alloys, ferrous with specific examples.</p> <p>understand the properties of metals and how they can be used to advantage .</p> <p>Know how they are converted and into what stock forms.</p> <p>Know common manufacturing, joining and finishing techniques involving metals.</p>
6. Assembling materials	<p>Joining methods</p> <p>Theoretical and practical knowledge.</p>	<p>After manufacturing and finishing, students will join their materials together to create a whole and functioning desk organiser.</p> <p>How joining methods can be permanent or temporary.</p> <p>Joining materials together like to like and dissimilar.</p> <p>Adhesives, joints,</p> <p>Completion of the project with joining the CAM laser cut base plate and</p>

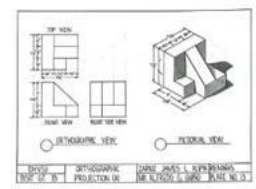
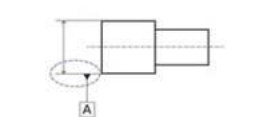
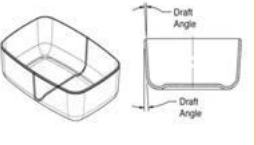
Topic	Key tier 2 and 3 vocabulary	Definition	Dual coding
Workshop introduction	Health and safety (Tier 2)	Rules and actions that keep people safe and stop accidents when working in a workshop.	
Workshop introduction	Risk assessment (Tier 3)	A careful check of what could cause harm and how to reduce dangers before starting work.	
Workshop introduction	Hazard (Tier 2)	Something that could cause harm or injury, like sharp tools or spills.	
Workshop introduction	Likelihood (Tier 2)	The chance of something happening, such as an accident or injury.	
Workshop introduction	Template (for marking out) (Tier 3)	A shape or pattern used to draw or mark the same design onto material.	
Workshop introduction	Coping saw (Tier 3)	A small hand saw with a thin blade used to cut curves or detailed shapes in wood.	
Workshop introduction	Disk sander (Tier 3)	A machine with a spinning round surface used to smooth or shape materials.	
Workshop introduction	Pillar drill (Tier 3)	A fixed machine used to drill accurate holes straight into materials.	

Topic	Key tier 2 and 3 vocabulary	Definition	Dual coding
Workshop introduction	Sand paper (Tier 3)	Rough paper used to smooth surfaces by rubbing away small bumps or edges.	
Workshop introduction	Junior hacksaw (Tier 3)	A small saw with a fine blade used to cut metal or plastic.	
Workshop introduction	File (Tier 2)	A tool with a rough surface used to smooth or shape edges of material.	
Workshop introduction	Wet and dry paper (Tier 3)	Special sandpaper that can be used with water for a smoother finish.	

Topic	Key tier 2 and 3 vocabulary	Definition	Dual coding
Moody lights	Electronic system (Tier 3)	A group of connected electrical parts that work together to control and produce an effect, like lighting.	
Moody lights	Input (Tier 2)	Something that starts or controls the system, like pressing a switch.	
Moody lights	Process (Tier 2)	What happens inside the system to change the input into an output.	
Moody lights	Output (Tier 2)	The final result, such as an LED lighting up.	
Moody lights	LED (light emitting diode) (Tier 3)	A small, energy-efficient light that glows when electricity passes through it.	
Moody lights	Resistor (Tier 3)	A component that limits how much electricity flows, helping protect parts like LEDs.	
Moody lights	Switch (Tier 2)	A device that opens or closes a circuit to turn something on or off.	
Moody lights	CAD (Computer-Aided Design) (Tier 3)	Computer software used to create, draw and develop detailed product designs digitally before making them.	
Moody lights	CAM (Computer-Aided Manufacturing) (Tier 3)	The use of computers and machines to produce products accurately from digital designs made using CAD.	
Moody lights	Development or Net (Tier 3)	A flat pattern that can be cut and folded to create a 3D shape or product.	

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Core design skills	Perspective (Tier 2)	A drawing method that shows depth and distance, making objects look more realistic.	
Core design skills	One and two point perspective (Tier 3)	A way of drawing using one or two vanishing points to show depth and make drawings look 3D.	
Core design skills	Thick line, thin line outline technique (Tier 3)	Using different line thicknesses to show important edges and create depth in drawings.	
Core design skills	Rendering (Tier 3)	Adding colour, shading and texture to a drawing to make it look realistic.	
Core design skills	Isometric (Tier 3)	A 3D drawing method where lines are drawn at equal angles to show height, width and depth.	
Core design skills	Isosketch (Tier 3)	A freehand sketch that looks like an isometric drawing but is drawn without rulers.	
Core design skills	Annotation (Tier 2)	Notes and labels added to a drawing to explain ideas, materials or features.	
Core design skills	ACCESS FM (Tier 3)	A design checklist: Aesthetics, Cost, Customer, Environment, Size, Safety, Function, Materials	

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Technology in society	Product evolution (Tier 3)	How products change and improve over time to meet new needs or use better technology.	
Technology in society	Technology push (Tier 3)	When new technology creates new products because it becomes available.	
Technology in society	Market pull (Tier 3)	When products are made because customers want or need them.	
Technology in society	Life cycle analysis (Tier 3)	Studying a product's impact on the environment from making it to disposing of it.	
Sustainability project	Environmental impact (Tier 2)	The effect a product or activity has on the natural world.	
Sustainability project	Six Rs (Tier 3)	Ways to reduce waste: Rethink, Refuse, Reduce, Reuse, Repair and Recycle.	
Sustainability project	Product life cycle (Tier 3)	The stages a product goes through from being made to being used and then thrown away.	

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Tic tac toe	Orthographic drawing (Tier 3)	A 2D drawing showing different views (front, top, side) of an object.	
Tic tac toe	Datum (Tier 3)	A starting point or reference line used to measure and mark out accurately.	
Tic tac toe	Tolerance (Tier 3)	The allowed difference in size or measurement for a part to still work properly.	
Tic tac toe	Former (Tier 3)	A mould or shape used to help form heated material into a design.	
Tic tac toe	Draft angle (Tier 3)	A slight angle on a shape that helps it be removed easily from a mould.	
Tic tac toe	Vacuum former (Tier 3)	A machine that heats plastic and uses suction to shape it over a mould.	
Tic tac toe	HIPS (High Impact Polystyrene) (Tier 3)	A lightweight plastic that is easy to shape and often used in vacuum forming.	

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Tic tac toe	PVC (Polyvinyl Chloride) (Tier 3)	A strong, durable plastic used in many products like pipes or packaging.	
Tic tac toe	Laser cutter (Tier 3)	A machine that uses a laser beam to cut or engrave materials accurately.	
Tic tac toe	Acrylic (PMMA) (Tier 3)	A clear plastic, also called Perspex, used as a lightweight alternative to glass.	
Tic tac toe	Blister packaging (Tier 3)	A type of packaging with a clear plastic cover shaped to hold a product.	
Tic tac toe	Packaging symbols (Tier 2)	Small icons on packaging that give information about recycling, safety or use. Broadly nonlanguage dependent.	
Tic tac toe	PICTPD (Tier 3)	A checklist used in design to describe a product's purpose and key features clearly.	

Year 8 Design & Technology

What is my Learning Journey this term?

Bigger Picture Questions:-

Recap on workshop principles

Using new materials to create various projects.
Safe working with metal and plastics. Heat forming. Casting. Understanding sources of how plastics and metals are formed, technical knowledge

START

Plastics Mainly Making, Technical Knowledge & Processes

What to expect

Content -- Design and make a small storage system from a net/development in acrylic sheet.

Understanding materials using a range of acrylic shaping and moulding techniques

Areas of exploration -- Health and safety, Cutting acrylic, Shaping acrylic with files, Draw filing edges and finishing, Creating formers for moulding, Heating and forming plastic, Joining plastics, Press forming plastics sheets, Drilling with a depth stop, Quality finishes

Assessment --

'Mainly Making' Quality of finish and accuracy.

What to expect...

Content -- Understand and demonstrate how to work safely with metal using a range of processes.

Areas of exploration -- Health and safety, Analysing a context, product analysis, designing, mould creation, Casting, Ferrous, Non-Ferrous and Alloy Metals, fettling,

Assessment--

Ongoing live BRAG marking of work, written assessment of skill, peer and self assessment

Metals Design and make, Technical knowledge & Processes

By the end of the unit you will be able to:

- research and develop a brief from a given scenario
- know and understand how to approach a design problem
- know how to develop a specification
- know how to and be able to generate ideas and communicate them
- know how to use 2D/3D software to make models and test out your design
- know how to make informed decisions about your design and its manufacture
- know how to produce a tool path and manufacture a mould using CAD/CAM
- know how to cast and finish your designed product

Creating a knowledge organiser about metals and alloys.

Woods Mainly Making, Technical processes

What to expect

by the end of the unit you will be able to:

- learn about manufacturing techniques and safe working procedures in the workshop
- learn how to select materials and manufacturing techniques appropriate to them
- learn how to analyse everyday products and identify their physical properties
- demonstrate how finishing techniques can enhance the material or product

#realworldready:

- Jewellery making
- Working to a live brief
- Identifying a client



What to expect...

Content -- Designing an item for a specific purpose

Areas of exploration -- problem solving Mechanisms

Assessment --

Communication of designs, Mainly making, testing and evaluation, improvements/adjustments required

Skills Ladder

How will you step up your skills this term?



Skills

- ☐ Health and safety
- ☐ Demonstrate safe working practices
- ☐ Marking out and measuring (mm, ml, g)
- ☐ Understanding different categories of metals
- ☐ Understanding different categories of Plastics
- ☐ Working with plastics -- cutting, shaping and finishing
- ☐ Sustainability
- ☐ Product analysis
- ☐ Designing
- ☐ Metalwork casting
- ☐ Fettling metal
- ☐ Design and development of ideas
- ☐ 2D/3D Drawing
- ☐ Nets of shapes
- ☐ Modelling
- ☐ Press forming
- ☐ Strip heating
- ☐ Line drawing
- ☐ Annotation
- ☐ Presentation

Litter Picker Making and Technical Knowledge

By the end of the unit, you will:

- Analyse and brainstorm a context.
- Construct and work from a simple design specification.
- Use the specification to manufacture a working prototype.
- Conduct testing and demonstrate problem solving to ensure a working product..

Drawing skills and presentation booklet

Flipped Learning Tasks researching plastic theory and sustainability issues

Home Learning

Year 8 Curriculum Overview- Subject

Content Topic/unit name, enquiry question	Disciplinary Knowledge (Skills) Actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for a topic, which is connected into a careful sequence of learning	Prior Learning (KS2)	Future learning (KS3)
<p>Design, make, evaluate an acrylic Desk storage solution</p> <p>Materials focus – Polymers</p> <p>The project will be based around using the strip heater to manipulate plastic into various shapes. They will develop templates and nets to help construct their solution as well as developing their design skills using oblique designing techniques. A focused practical task at the start of the project will be done to develop their skills for the main project. (Autumn)</p>	<p>Designing Designing a functional product. generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p><i>Making</i> <i>Health and safety, Cutting acrylic, Shaping acrylic with files, Draw filing edges and finishing, Creating formers for moulding, Heating and forming plastic, Joining plastics, Press forming plastics sheets, Drilling with a depth stop, Quality finishes</i></p> <p><i>Evaluating</i> <i>Testing a product to see if it is fit for purpose. Self assessment and p</i></p> <p><i>Technical knowledge</i></p>	<p>MA 7 - select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture MB 1 - make use of specialist equipment to mark out materials MB 7 - follow procedures for safety and hygiene and understand the process of risk assessment MB 8 - use a wider, more complex range of materials, components and ingredients, taking into account their properties MB 9 - use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • MB 11 - apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods</p> <p>TK1 - how to classify materials by structure e.g. hard words, soft woods, ferrous and non-ferrous, thermoplastic and thermosetting Plastics TK2 - about the physical properties of materials e.g. grain, brittleness,</p>	<p>General Health and Safety will be built on and referred to from previous projects reiterating its importance. Skills demonstrated in this will lead on from their previous project and introduce a plastics forming process.</p>	<ul style="list-style-type: none"> Students will have pushed themselves out of their comfort zones to explore wider and more sophisticated and challenging techniques. Excellent standards of finish will have been achieved independently through practical outcomes. Students can articulate the process and justify design choices and skills and technique used, which supports the development through KS3 and into KS4 All of these skills will feed in to the Year 9 curriculum which allows students to combine all material areas they have developed knowledge and skills of in Year 7 and 8.

Year 8 Curriculum Overview- Subject

Content Topic/unit name, enquiry question	Disciplinary Knowledge (Skills) Actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for a topic, which is connected into a careful sequence of learning	Prior Learning (KS2)	Future learning (KS3)
<p>Jewellery Design To design and make an item of jewellery based upon 20th century design movements. It must reflect the essential features of the movement. (Autumn/spring)</p>	<p>DESIGNING Designs are created by using any relevant sources of inspiration, mood boards are used in this example, but existing products, material handling trays and collections of artifacts could be also used</p> <p>Making</p> <ul style="list-style-type: none"> The mould is made from MDF/ply by either using a laser cutter or by hand; the pewter is heated and poured into the mould to make the piece of jewellery. Hand finishing techniques are then used to finish the surface of the work. <p>• Evaluating Designs are evaluated and compared to the specification before moving on to making.</p> <p>• Technical knowledge This is potentially relevant at all times.</p>	<p>DA 2 - use research including the study of different cultures, to identify and understand user need DA 9 - take creative risks when making design decisions DB 2 - produce models of their ideas using CAM to test out their ideas DB 4 - use CAD and related software packages to validate their designs in advance of manufacture DB 5 - use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations DB 9 - develop and communicate design ideas using annotated sketches MA 7 - select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture MB 11 - apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods TK 7 - how materials can be cast in moulds TK 8 - how to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines</p>	<ul style="list-style-type: none"> Experience of evaluating the success of a product if a student has made something for another person. Understanding that some features of a product are desirable, and others are essential 	<p>Designing</p> <ul style="list-style-type: none"> Students understand how a designer works for others and can understand their needs/wants <p>Making</p> <ul style="list-style-type: none"> Students are developing a range of skills, using a range of materials and techniques in a safe manner understanding the need of risk assessments <p>Evaluating</p> <ul style="list-style-type: none"> Self evaluation of what has been learned. Peer evaluation of the final product against the design specification. <p>Technical knowledge Greater understanding of material properties and characteristics for use.</p>

Year 8 Curriculum Overview- Subject

Content Topic/unit name, enquiry question	Disciplinary Knowledge (Skills) Actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for a topic, which is connected into a careful sequence of learning	Prior Learning (KS2)	Future learning (KS3)
<p>Salad Servers – Mainly Making</p> <p>Students will manufacture a product manufactured from timber, using the laminating process, which will be a functional salad server.</p> <p>Eating together, bending materials, product analysis, ergonomics & anthropometrics, user experiences, evaluating designs through modelling, formers.</p> <p>(spring)</p>	<p>Designing</p> <ul style="list-style-type: none"> Students will begin the designing element of the project by going straight into modelling thus educating them that there can be multiple ways to begin designing. <p>Students will use the in project developed knowledge of Ergonomics and Anthropometrics to manufacture their products.</p> <ul style="list-style-type: none"> Students will use product analysis and user experiences as a driving force of design. Modelling is the predominant tool use when designing – no sketching takes place. Develop students' knowledge of materials, manufacturing techniques and how to apply these. <p>Making</p> <ul style="list-style-type: none"> Students will use pre-made formers to bend their designs into a curvature shape using the laminating process. Shaping will take place using hand tools and/ or appropriate workshop machinery. <p>Evaluating</p> <ul style="list-style-type: none"> Evaluating existing products and own designs as the project progresses. <p>Technical knowledge</p> <ul style="list-style-type: none"> Timbers, laminating, use of formers, use of star diagrams as an evaluative tool. 	<p>DA 3 - identify and solve their own design problems DA 4 - develop design specifications that include a wider range of requirements such as environmental, aesthetic, cost, maintenance, quality and safety DA10 - consider additional factors such as ergonomics, anthropometrics or dietary needs DB 5 - use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations DB 6 - combine ideas from a variety of sources DB 8 - decide which design criteria clash and determine which should take priority DB 10 - produce 3D models to develop and communicate ideas MB 7 - follow procedures for safety and hygiene and understand the process of risk assessment MB 9 - use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • MB 11 - apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods EA 3 - select appropriate methods to evaluate their products in use and modify them to improve performance EA4 - produce short reports, making suggestions for improvements EA5 - test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups TK16 - use learning from science to help design and make products that work TK17 - use learning from mathematics to help design and make products that work TK18 - understand the properties of materials, including smart materials, and how they can be used to advantage.</p>	<p>Yr 7 -Students will have knowledge of the workshop and the ability to use a range of hand tools and workshop machinery.</p> <ul style="list-style-type: none"> Students will have previous experience working with timbers. 	<p>A greater understanding of materials and processes which informs future design possibilities and outcomes, making it possible to be more creative with an understanding behind what they know is possible to achieve.</p>

Year 8 Curriculum Overview- Subject

Content Topic/unit name, enquiry question	Disciplinary Knowledge (Skills) Actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for a topic, which is connected into a careful sequence of learning	Prior Learning (KS2)	Future learning (KS3)
<p>Design and Make Litter picker</p> <p>Students will design and model a product that is fit for purpose. They will be required to design iteratively (design/model/test/improve) Use a specifications will be used to inform the designing. (Summer)</p>	<ul style="list-style-type: none"> • Designing <ul style="list-style-type: none"> • <i>Using design criteria to develop suitable design ideas and proposals. Utilising supporting research.</i> • Making <ul style="list-style-type: none"> • <i>Linked to making models and prototypes, using modelling based materials and techniques. Using hand tools and specialist machinery. Working from manufacturing plans and drawings. Producing a cutting list of materials and components.</i> • Evaluating <ul style="list-style-type: none"> • <i>Reviewing ideas and proposals against success and design criteria, .</i> • Technical knowledge <ul style="list-style-type: none"> • This is potentially relevant at all times 	<p>DA 3 - identify and solve their own design problems DB 5 - use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations DB 9 - develop and communicate design ideas using annotated sketches</p> <p>MB 2 - use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives MB 7 - follow procedures for safety and hygiene and understand the process of risk assessment MB 9 - use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • MB 11 - apply a range of finishing techniques, including those from art and design, to a broad range of materials including textiles, metals, polymers and woods</p>	<p>Yr7 - Experience of manipulating workshop based hand tools and machinery.</p>	<p>A greater understanding of materials and processes which informs future design possibilities and outcomes, making it possible to be more creative with an understanding behind what they know is possible to achieve, this is a good grounding towards GCSE practices.</p>

Lesson title/enquiry,	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
2. Focused practical task: Device storage (slide 9 - 10) (Designing) Print slide 9 / student And Slide 1 from plastics investigation homework power point	Previous knowledge on plastics? Modelling/templates	Introduce task and get students to do single line quick sketches of possible ideas. Then create double line and use oblique drawing skills to create 3d drawings. Can use 2D Design sheet or students draw in books. Create card model templates for final idea create a card mock up with fold lines and measurements. Talk about templates and their importance. Measuring accuracy to ensure a working product and less waste. Homework - to explore plastic as a material
3. Focused practical task: Device storage (slide 12) Print slide 12/student	Familiar tools and equipment from Yr 7 Pillar drill, Coping saw, file	Why do we model ideas? How to mark out designs on materials for accuracy . Introduction to specific tools. Eg Strip heater, Wet & dry paper How to cut and finish plastic for a quality outcome.
4. Focused practical task. Print slides 16 and 18		Complete practical and check understanding of tools used. Strip heater knowledge check sheet. Evaluation/Reflection on focused practical task.
5. Introduction to Challenge Print slide 19 Task Analysis	Previous knowledge on plastics? How to complete a Task Analysis. What a Task Analysis is?	Recap on plastics and how they are a reliable material to use in D&T. Introduce Design Brief How to break down a Design Brief by carrying out a task analysis looking at all the possibilities they can explore. This is to get students thinking about possible solutions, clients, locations and types of product. Encourage creative layout using colour.
6. Product analysis (slide 25) Print slide 23/student	Investigating products	Health and safety rules reminder How to analyse an item/product in detail in order to understand more about it. 2D Design presentation/drawing skills – how to come up with ideas quickly and present these ideas quickly
7. Design ideas & development drawing skills	2D and 3D shapes	Clear presentation skills of ideas with annotation to explain key features
8. Card modelling, marking out, practical		Creating templates, marking out accurately, quality finish to acrylic plastic. Strip heater to bend plastic safely.
9. Practical lesson bending plastic		Bending plastic. Test and evaluate product.

Lesson title/enquiry,	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
Jewellery Unit 1. Understanding/analysing a design brief. 2. Specification requirements 3. Research/investigation	Understanding that some features of a product are desirable, and others are essential Previous skills in research and collecting of information/ inspiration.	Analysis the task given to break it down and improve understanding. Students use the specification given and learn how to adapt it to suit a real specific person, focusing on their needs and wants. Demonstrate using some existing examples. If access to computer (or homework) students are asked to create a mood board based on a design movement – e.g. Art Deco (, Memphis(Ettore Sottsass, Aldo Rossi, Philippe Starck), Art Nouveau (Louis Comfort Tiffany) and Arts and crafts movement (Charles Rennie Mackintosh, William Morris)
Design Strategies	Basic line drawing skills, presentation of ideas skills, how/why to annotate	Using a mood board to generate simple 2D line drawings based on the shapes and characteristics seen. Use the viewfinder technique to create by zooming into areas they may not have seen from looking at the whole piece. Consider presentation skills – fineliner, colour etc.
Development of ideas Making informed decisions	Use of ideas and specification to develop for a specific audience. No design fixation	Avoid design fixation and develop initial shape designs into more jewellery like parts, considering the functions of the piece and how the material (pewter) could flow into the mould. Size restrictions may dictate developments. May consider 3D effect, may model in card layering to create more complex designs that could allow infill of colour.
CAD designing for mould	2D design basic skills from Yr 7 Maths – 2D shapes, measurements/dimensions	Recap on using 2D design software Understanding of pewter casting process to design the appropriate mould. Follow the given process to create an accurate and workable mould to cast pewter into. CAD files can then be laser cut ready for casting process.
Practical - Pewter casting process	How moulds work in general e.g., jelly mould. Safety understanding from previous practical work and science experiments	Understanding the Pewter Casting Process and how to do it safely from set up to complete casting. Knowledge of Pewter as a material and its uses.
Practical – finishing processes	Basic workshop tools previously used with other materials	Understanding and demonstrating how to achieve a quality finish on a metal product using the correct equipment.
Reflection, assessment	Self reflection against given criteria. Understanding how to improve.	How well have students achieved the learning objectives

Lesson title/enquiry,	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
Salad servers unit (mainly making) Understanding the context Exploring the task	Thinking around a context to come up with ideas	Existing product knowledge, relating life experience to the context. How we use handheld items?, how do we transfer an item from one place to another?
Anthropometrics	Understanding that we are all different shapes and sizes and that this changes as we grow/age.	Understanding anthropometric data and how/why it is used. Collecting a sample from the class using the appropriate units (mm) then using numeracy skills to find the mean average.
Product analysis	Products usually have at least one function/purpose.	Positive and negative features to guide design considerations
Modelling	Basic skills with cutting tools and assembly	Cardboard modelling based on demonstration. Model the existing product and then can develop the design using further models
Ergonomics Development	Knowing that products are made to 'fit' us in certain ways. Our first idea isn't always our best idea, and we can develop ideas based on further information.	Introduction to ergonomics. Use a star diagram to evaluate the ergonomics of their model.
Materials knowledge	Working with wood in Yr7, cutting it out and what tools are appropriate.	How to bend timber - steam bending, kerf-cutting, living hinge, examples shown to demonstrate. How it works.
Design Specification	We need criteria to check if things are correct. The criteria is decided on various factors	Understand why a specification is important. Write a design specification considering; function, size, material properties, aesthetics, user needs, ergonomics and safety.
Manufacture	Workshop safety and basic use of tools to develop further.	Former made and students choose which one to laminate the wood parts. Marking out and cutting/shaping and finishing
Manufacture	Different materials can have different 'finishes' applied	Surface finishes - appropriate to food-based products.
Evaluation and testing	Evaluating allows us to see where we are at and how to improve..	How to use the specification to evaluate the appropriateness of the finished product.

Bigger Picture Questions:-

How can I use my skills in design and technology to solve problems?
How can I communicate my ideas effectively?
How can I present to high standards to demonstrate my skills and expertise in D&T?

Year 9 Design & Technology

What is my Learning Journey this year?

#realworldready:

- Exploring job roles in D&T
- Working to a relatable Design Brief.

Skills Ladder

How will you step up your skills this term?

Skills

- ☐ Planning for safe and accurate manufacture
- ☐ Applying practical skills and knowledge
- ☐ Understanding contexts, users and purposes
- ☐ Generating, developing, modelling and communicating ideas
- ☐ Evaluating Own ideas and products
- ☐ Evaluating existing products
- ☐ Looking at key designs and designers
- ☐ Understanding how products work and function

What to expect...

Content – developing your ability to design within constraints and produce high-quality outcomes
You will design, develop and make a laminated USB/LED lamp

Areas of exploration –

Designing, Making, Evaluating products technology in society, designers and design movements, systems and control

Assessment –

Presentation. Competition entry
Assessment of skills BRAGged

Ergonomic pizza wheel

Summer

Mechanical systems automata project

Autumn

What to expect...

Content –developing your understanding of how the made world works
Exploring mechanical systems and designing and making a mechanical toy that uses cams to create a animated scene.

Areas of exploration –

Understanding contexts, Designing and model making, presenting ideas, planning and budgeting, evaluating your own ideas and products.

Assessment–

A presentation, Homework assessment of skills BRAGged

Laminated lamps

Winter

What to expect...

Content – The role of designers in society, gathering primary data designing and modelling a prototype. Functions of packaging, testing and evaluating prototypes, ergonomics.

Areas of exploration – CAD/CAM, design and making, packaging, functions of packaging, ethical and social issues

Assessment– Homework. Competition entry, Assessment of skills BRAGged. End of unit written assessment.

End of Year Assessment



Brag marking of key assessment pieces throughout.

Home Learning

Investigating architects and producing a design

Flipped Learning Tasks researching timber. Creating a knowledge organiser

Investigating architects and producing a design

Year 9 D&T Curriculum Overview

Content Topic/unit name, enquiry question	Disciplinary Knowledge (Skills) Actions taken within a topic to gain substantive knowledge	Substantive Knowledge This is the specific, factual content for a topic, which is connected into a careful sequence of learning	Prior Learning	Future learning (GCSE)
Autonoma toy 7 weeks	DESIGNING (A) Understanding contexts, users and purposes EVALUATING (B) Existing products	DB 9 - develop and communicate design ideas using annotated sketches DB 10 - produce 3D models to develop and communicate ideas EB 2 - the positive and negative impact that products can have in the wider world EB3-products that they are less familiar with using themselves EB4-products considering life cycle analysis	<ul style="list-style-type: none"> Basic 2D drawing skills are useful but not essential. Understanding of aspects to annotate against are useful, but can be done afterwards. Product Design: Eco Design unit to give some context for the impact of designing everyday products. 	AQA 8552 3.1.4 Systems approach to designing 3.3.4 Design strategies
Laminated lamps Developing concepts 6 weeks	MAKING (B) Planning for manufacture DESIGNING (A) Understanding contexts, users and purposes DESIGNING (B) Generating, developing, modelling and communicating ideas EVALUATING (B) Existing products	<ul style="list-style-type: none"> use research and exploration, such as the study of different cultures, to identify and understand user needs identify and solve their own design problems and understand how to reformulate problems given to them develop specifications to inform the design of innovative, functional, appealing products that responds to needs in a variety of situations use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses develop and communicate design ideas using annotated sketches, detailed planes, 3-D and mathematical modelling, oral and digital presentations and computer-based tools 	<ul style="list-style-type: none"> Contexts- analyzing and finding opportunities Iterative design processes Responding to a target markets needs and wants Using research to inform ideas Developing specifications Initial design ideas 	AQA 8552 3.3.5 Communication of design ideas 3.3.6 Prototype development
Laminated lamps Realising outcomes 10 weeks	MAKING (A) Practical skills and techniques MAKING (B) Planning for manufacture EVALUTING (A) Own ideas and products	<ul style="list-style-type: none"> understand and use the properties of materials and the performance of structural elements to achieve functioning solutions select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties analyse the work of past and present professionals and others to develop and broaden their understanding investigate new and emerging technologies test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists 	<ul style="list-style-type: none"> Developing design ideas Manufacturing specifications Developing a prototype Evaluating prototypes against specifications 	3.3.7 Selection of materials and components 3.2.5 Using and working with materials 3.2.8 Specialist techniques and processes
Ergonomic pizza wheel 10 weeks	DESIGNING (A) Understanding contexts, users and purposes MAKING (A) Practical skills and techniques MAKING (B) Planning for manufacture EVALUATING (B) Existing products TECHNICAL KNOWLEDGE Making products work	<ul style="list-style-type: none"> research the health and wellbeing, cultural, religious and socio-economic contexts of their intended users understand how to reformulate design problems given to them consider additional factors such as ergonomics, anthropometrics or dietary needs make simple use of planning tools, for instance Gant charts communicate their plans clearly so that others can implement them match and select suitable materials considering their fitness for purpose use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely exploit the use of CAD/CAM equipment to manufacture products, increasing standards of quality, scale of production and precision products that they are less familiar with using themselves products considering life cycle analysis how products can be developed considering the concept of 'cradle to grave' use learning from mathematics to help design and make products that work understand the performance of structural elements to achieve functioning solutions 	<ul style="list-style-type: none"> Understanding and applying ergonomic principles in design Modelling and testing prototypes Reflective iterative design using user feedback Understanding and applying the functions of packaging Evaluating prototypes against specifications 	3.1.1 Human factors in design 3.1.1 New and emerging technologies 3.2.5 Using and working with materials 3.2.8 Specialist techniques and processes 3.3.6 Prototype development

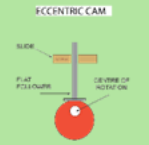
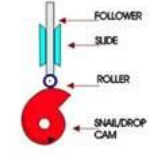
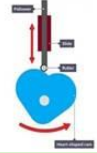
Lesson title/enquiry	Prior knowledge/links to previous years (including KS2)	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1. Design for systems	Mechanical and electronic systems What makes a product interactive?	Health and safety rules and expectations 3 part systems Types of motion (rotational, linear, reciprocating, oscillation) Types of cam and follower Manipulation motion through cams
2. Designing potential outcomes for the cam toy.	Design skills Annotations Designing for users needs and want Exploring a context Design innovation	Exploring the issue and context. Generating ideas and presenting ideas Use of SCAMPER and other
3. Developing the mechanism and idea.	Mechanical systems Evaluating again brief and specifications User feedback and testing Testing ideas and prototypes	Prototyping the mechanism of the product. functional prototypes and testing Prototyping the housing and material form of product. Generating a design presentation board.
4. Manufacturing the frame	Manufacturing specifications Marking out materials Joining materials	Understanding and applying knowledge of – marking out Understanding and applying knowledge of -Joining methods Interpreting assemblies and manufacturing documentation such as exploded drawing, orthographic projections and production plans
5. Manufacturing and testing the mechanism	Mechanical systems Assemblies	Prototyping the interactivity of the product. Prototyping the housing and material form of product. Generating a design presentation board.
6. Application of surface finishes and embellishment	Finishes	Functions of a finish How to apply a finish and prepare a substrate
7. Adaption week	N/A	Use for any lost curriculum time(i.e. finishing units), MAD time, Feedback and assessment. Especially Afl adaptations to minimise and bridge gaps/misconceptions in this units understanding.

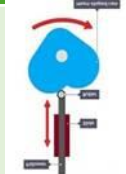
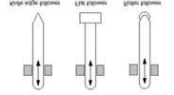
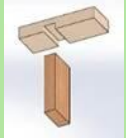
Year 9 D&T Curriculum Unit Core Elements

Lesson title/enquiry	Prior knowledge/links to previous years	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1.Introduction to project, exploration of similar products	Product analyses Exploration of context Primary and secondary research techniques	To define a problem around lighting To identify a suitable user who would benefit from a solution To explore existing and similar product as well as the context to better design an appropriate outcome
2. Lamination	Year 8 salad server product Product analysis	The main features of lamination Scales of manufacture batch manufacture Use of quality control aspects like formers Creating a detailed production plan that enhances quality control in manufacture
3.Project Brief and specification	Design briefs and specifications	Creating a suitable design brief and specification based of user needs and wants
4. Initial Ideas	Communication techniques Sketching in 2D and 3D Enhancing ideas with annotation Responding to a design brief and specification	Developing communication and presentation skills Conveying a range of suitable ideas Reviewing ideas against the design brief and specification to select the most appropriate.
5. 3D Sketches/ prototypes	Iterative design cycles Creating models Testing concepts Canvassing user feedback to enhance development	Creating plausible and considered ideas that conform to limitations of the process Benefits of modeling How to evidence good modeling and progression of ideas through over drawing on model photographs/sketches Gaining user feedback
6. Modeling and prototyping iteratively	Iterative design cycles Creating models Testing concepts Canvassing user feedback to enhance development	Developing existing ideas Using prototypes to generate key manufacturing specification information
7 Laminating the lamps forms	Year 8 salad server project Lamination key theory content	Marking and cutting according to a manufacturing specification Preparing materials completing the lamination lay up process Ensuring that a high standard of quality control is followed to improve outcomes
8. Adaptation week	N/A	Use for any lost curriculum time(i.e. finishing units), MAD time, Feedback and assessment. Especially AfL adoptions to minimise and bridge gaps/misconceptions in this units understanding.

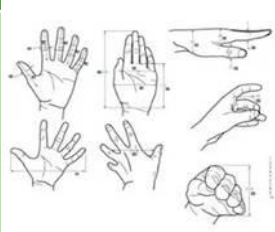
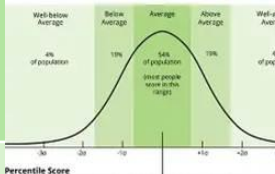
Lesson title/enquiry	Prior knowledge/links to previous years	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1. Initial forming and lamination	Year 8 salad server project Lamination key theory content	Marking and cutting according to a manufacturing specification Preparing materials completing the lamination lay up process Ensuring that a high standard of quality control is followed to improve outcomes
2. Electronics and soldering	Electrical and mechanical systems Inputs outputs and control Health and safety Workshop etiquette Joining materials	Students can define the 3 parts of the lighting system (input, process, output) Know the difference between series and parallel circuits and design a LED parallel system for the lamp Know the key health and safety points for soldering and know the key skills in order to solder effectively
3. Soldering cont. and making bases	Health and safety Workshop etiquette Joining materials Electrical systems Generating products from a manufacturing specification Quality control- template use	Using their existing designs, actual lamination forms and manufacturing specification; students will create templates to fabricate base components and improve quality control and therefore outcomes. Students will mark out and use wasting processes to make the components required for the base. Students will use a range of joining methods, namely adhesives to connect parts and assemble sub assemblies before finishing and wiring
4. Soldering cont. Finishing Materials	Identifying finishes Reasons to apply a finish Application of finishes	Appreciation for the application of finishes on products and why designers and manufactures use them Students can identify common finishes on wood, plastics and metals. Students can apply finishes to parts based on their desire to improve aesthetic or performance Students are aware of COSHH and maintaining application tools like brushes/worktops etc.
5. Joining Materials	Joining similar materials Joining dissimilar materials Choosing appropriate finishes Permeant and temporary joining methods	Students can identify the reasons for selecting permanent or temporary joining methods Students can give examples of each Students understand and can apply their chosen joining method safely
6. Soldering/ make final assembly	N/A	Students will draw on all previous lessons to draw together multiple finished components to assemble Testing and snagging of electrics
7. Evaluation	Evaluating own products and ideas Evaluating the work of others	Students will evaluate their products and determine success based on a mixture of: Comparisons against user feedback, their original design brief and specification as well as reflection on own experiences. Understand the value of evaluation methods as a way to improve quality assurance and outcomes
8. Adaptation week	N/A	Use for any lost curriculum time(i.e. finishing units), MAD time, Feedback and assessment. Especially AFL adoptions to minimise and bridge gaps/misconceptions in this units understanding.

Lesson title/enquiry	Prior knowledge/links to previous years	Core (substantive) factual knowledge/core disciplinary knowledge- what is essential for their understanding/future learning.
1.Introduction to project – ergonomic pizza wheel - exploration of similar products	Product analyses Exploration of context Primary and secondary research techniques	To define a problem around lighting To identify a suitable user who would benefit from a solution To explore existing and similar product as well as the context to better design an appropriate outcome
2. Ergonomics	Using products Uncomfortable and difficult products Health and safety	The main features of ergonomics Importance to improve comfort and safety in products Creating a detailed production plan that enhances quality control in manufacture
3.Product testing and primary research	Primary research techniques Evaluation the products of others	Looking at existing products and thinking about comfort and safety as well as functionality and user experience Collecting observations to inform their own design decisions
4. Initial forms and card prototyping	Communication techniques Sketching in 2D and 3D Enhancing ideas with annotating Responding to a design brief and specification Iterative design cycles Creating models Testing concepts Canvassing user feedback to enhance development	Developing communication and presentation skills Conveying a range of suitable ideas Reviewing ideas against the design brief and specification to select the most appropriate. Using testing methods to inform development- Comfort How to evidence good modeling and progression of ideas through over drawing on model photographs/sketches Gaining user feedback
5. Developing ideas through CAD/CAM	Computer aided design 2D design tools	Creating forms in 2D design tools following their explorations in form via sketching and prototyping Appreciation of creating a spline and editing vector points – nodes and handles Generating scale models Then advantages of CAD/CAM
6. Developing ideas through CAD/CAM	Computer aided design 2D design tools	Using 2D CAD to create scale template and final 3D visualizations Using 2D design to export .DXF's into more sophisticated software Generating 3D CAD visualizations in On Shape The disadvantages of CAD/CAM
7. Developing a functional prototype from CAD	Foam shaping and modelling 3D prototyping Scale modelling	Using Styrofoam to create a scale model of the 3D prototype Gathering user feedback to improve outcomes Informing a design specification
8. Adaptation week	N/A	Use for any lost curriculum time(i.e. finishing units), MAD time, Feedback and assessment. Especially AfL adaptations to minimise and bridge gaps/misconceptions in this units understanding.

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Automata toy	Rotary motion (Tier 3)	Movement in a circular direction, like a wheel turning.	
Automata toy	Oscillating motion (Tier 3)	Movement that swings back and forth from a fixed point, like a pendulum.	
Automata toy	Linear motion (Tier 3)	Movement in a straight line from one place to another.	
Automata toy	Reciprocating motion (Tier 3)	Repeated back-and-forth motion in a straight line.	
Automata toy	Offset cam (Tier 3)	A cam that is not centred, creating uneven movement when it turns.	
Automata toy	Snail cam (Tier 3)	A cam shaped like a spiral that creates a slow rise and sudden drop motion.	
Automata toy	Pear shaped cam (Tier 3)	A cam shaped like a pear that creates smooth, uneven movement.	
Automata toy	Heart cam (Tier 3)	A cam shaped like a heart that creates a steady up-and-down motion.	

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Automata toy	Heart cam (Tier 3)	A cam shaped like a heart that creates a steady up-and-down motion.	
Automata toy	Follower (Tier 3)	A part that touches the cam and moves as the cam turns.	
Automata toy	Slide (Tier 3)	A part that the follower moves back and forth in a straight line.	
Automata toy	Iterations (Tier 2)	Repeated improvements made to a design to make it better based on testing and feedback.	
Automata toy	Manufacture specification (Tier 3)	A detailed plan showing how a product should be made, including sizes and materials.	
Automata toy	Housing joint (Tier 3)	A method of joining parts to create a strong outer structure or case.	
Automata toy	Quality control (Tier 2)	Checking products during and after making to make sure they meet an expected standard.	
Automata toy	Wood finishes (Tier 3)	Materials applied to wood to protect it and improve its appearance.	

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Laminated lighting	Lamination (Tier 3)	Joining layers of material together using glue or pressure to make it stronger and more rigid.	
Laminated lighting	Veneers (Tier 3)	Thin slices of wood glued onto surfaces or layered to improve appearance.	
Laminated lighting	Former (Tier 3)	A mould or shape used to help bend or shape materials and keep it there whilst the adhesive cures.	
Laminated lighting	Solder (Tier 3)	A melted metal used to join electrical components together.	
Laminated lighting	Flux (Tier 3)	A chemical used when soldering to help the metal flow and stick properly by stopping oxidation.	
Laminated lighting	Soldering iron (Tier 3)	A heated tool used to melt solder and join electronic parts.	
Laminated lighting	Adhesive (Tier 2)	A substance like glue used to stick materials together.	

Topic	Key Tier 2 and 3 Vocabulary	Definition	Dual coding
Ergonomic pizza wheel	Anthropometrics (Tier 3)	The study of human body sizes and shapes to help design products that fit people comfortably.	
Ergonomic pizza wheel	Ergonomics (Tier 3)	Designing products to be comfortable, easy and safe for people to use.	
Ergonomic pizza wheel	50th percentile (Tier 3)	The average measurement, meaning half of people are bigger and half are smaller.	
Ergonomic pizza wheel	Iterative developments (Tier 2)	Repeated improvements made to a design based on testing and feedback.	
Ergonomic pizza wheel	User centred design (Tier 3)	Designing a product based on the needs, wants and comfort of the user.	
Ergonomic pizza wheel	Planning (Tier 2)	Thinking ahead and organising steps and resources before making a product.	

Design and Technology – KS4

MATNAV



Marches Academy Trust

#realworldready:

- Trip/Visit – Factory – Production Line
- Apprenticeship talks/visits
- University taster sessions
- Enterprise Opportunities



GCSE Revision & exam skills

Exam & Post – 16 Destination

College

Apprenticeships

A-Level Product Design

Final Exam

NEA Submission

Core Principles

Evaluation and Modification

NEA Manufacture and Evaluation

Manufacturing Specification

Materials Research

NEA Designing and Prototyping

Design Development

Specification

Design Brief

Primary Research

NEA Research

New and Emerging Technologies

Mock Exams

Product Manufacture

Prototyping/Modelling
Initial Ideas
Energy, materials, systems and devices

The Work of Others
Secondary Research

YEAR 11

Client Profile

Task Analysis

NEA Context Analysis and Initial Research

NEA Contexts Launched - June

Mock Exams

Ergonomics and Anthropometrics

Technical Principles

Timber Based Materials

Sustainability and the Environment – 6Rs and Social, Ecological Footprint

YEAR 10

Polymers

Cards and boards

Material Properties

Core technical Principles

Metals

Forces and Stresses

Tolerances and marking out

Surface Treatments and Finishes

Making Principles

Scales of Production

Selection of materials and components

Tools, equipment and processes

Investigation, primary and secondary data and research

Communicating Design Ideas

Designing Principles

The Work of Others – Designers and Companies

Design Strategies – Design Briefs and Specifications

Design Skills and Presentation

The Big Picture

Year Group 10

Developing practical skills, independent working/problem solving and theory knowledge to give an overview of the GCSE course. These will then be fed into how to best complete the NEA in year 11 as well as the written assessment.

Intent

Units Covered: New and Emerging Technologies, Energy, Materials, Systems and Devices, Materials and their working properties, Common Specialist Technical Principles, Timber Based Materials, Designing principles, Making Principles

Skills covered: Independence, theory, practical skills and technical knowledge

Links to previous learning: Materials, designing and making principles will be built on from KS3. New theory content will be introduced.

Implementation

The course will consist of 3 lessons a week. 2 will be design/practical based and one theory. There will be more emphasis on theory towards key assessments and mock examinations

LORIC will be referred to throughout the course. With the main focus being organization, resilience and initiative. Communication will be developed in communicating design ideas and through the NEA.

Independence will be developed through creative thinking and encouraging students to take risks in their work. This will in turn build trust in students taking ownership of their work in preparation for the NEA which is vital.

A mixture of homework tasks including examination questions and research tasks will be done. The use of flipped learning will be used when introducing new theory topics to scaffold learning.

Revision booklets have been developed to help with revision of key theory. Using PEE/PETER paragraph are helping with extended writing questions.

How are literacy and numeracy skills to be developed and extended?

Consider your assessment Markers

Assessment: following each unit of theory (half termly)

Low stakes testing
Deep marking points: all written and theory work will be deep marked

Home learning will be set weekly
Conferencing/MAD time during design/practical lessons

Autumn Term

Design and Presentation skills
Design and making principles
Mini Desk Tidy project
Timber based materials

Spring Term

Mock NEA – Feedback given
Common materials
Commercial manufacturing
CAD/CAM

Summer Term

Mock Examination – revision program
Commence NEA

Impact

By the end of year 10 students should be skilled with a variety of theory and practical knowledge to build upon in year 11. This will be implemented greatly in the NEA as well as examinations.

The development of independence, organization and initiative will be implemented throughout year 10 and should be demonstrated throughout the NEA process.

The Big Picture

Year Group 11

Students will undertake their NEA which accounts for 50% of their overall grade. This will aim to be finished during the Spring term which will then lead into a theory and exam preparation period in the lead up to the exam.

Intent

Units covered: Completion of the NEA and theory knowledge from the AQA specification.

Skills covered: Practical application, independence, initiative, organization and time management

Links to previous learning: The year 11 year of study builds upon skills and knowledge from year which is applied to the NEA as well as 2 mock examinations. Independent study will mainly be based around theory.

Implementation

How will the units within this year of study be organised/structured?

NEA will be completed during lesson time and will be supplemented with a theory independent study programme in preparation for the examination

How will you promote LORIC through this year of study?

LORIC will be promoted through creative thinking and communication of design ideas and concepts.

Students focused a lot on independent working in year 10 and organizing time wisely to maximize lesson time.

Exam technique will be focused on in the lead up to mock exam periods and in the spring term to enable students to be prepared for exams

Where are the WOW moments and how will you celebrate achievement?

Encouraging creativity so students can have their own input on designs. Parental contact to celebrate achievement and participation in after school sessions and completion of deadlines will be implemented.

How are literacy and numeracy skills to be developed and extended?

Maths questions will be present in the exam so work has been done to liaise with the maths team to try and get some DT questions into maths lessons. This will help students link between subjects.

Consider your assessment Markers

Due to exam board regulations ongoing assessment of the NEA during its completion is not allowed. However a BRAG Tracking sheet will be used to inform students of completed sections of their NEA.

Independent study based on theory will be deep marked

2 / 3 Mock examinations will also be done during year 13.

Autumn Term
NEA

Spring Term
NEA/Revision

Summer Term
Revision/theory
sessions

Impact

What is it that you want students to know/be able to do by the end of this year of study?

Next steps: Students who are successful in GCSE Design and Technology have a strong pathway into the A-Level Product Design course which is structured very similarly to the GCSE, especially the NEA.

Students who don't choose to remain studying A-Levels will be suited to a variety of college courses as skills developed on the course can overlap into many field not just STEM courses.

MATNAV

Post 18
Destinations

University

Apprenticeships

#realworldready:

- Trip/Visit – Factory – Production Line
- Apprenticeship talks/visits
- University taster sessions

BRAG Marking



Revision & exam
Preparation

Final Exams

NEA
Submission

Mock Exams

Theory Revisited

Evaluation

Modifications

Manufacturing
Specification

QC/QA

Materials
Research

Design
Development

Analysing and
Evaluating

Development
of Design
Prototype

Development
of Design
Proposals

YEAR
13

Design Brief

Producing a
Design Brief
and
Specification

Specification

Initial Ideas

Prototyping/
Modelling

Product
Manufacture

Product
Testing

Mock Exams

Practical Assessments

Regular Feedback

Theory Assessments

Flipped Learning

Independent study

Mock NEA/Focus practical tasks

YEAR
12

Core Technical Principles

Materials and their
application

Performance Characteristics
of materials

Forming, redistribution and
addition processes

Digital design and
manufacture

Product design and
development

Design
Communication

Primary
Research

Client
Interview

Design
and
Making
Principles

Identifying and
Investigating
Design
Possibilities

Design methods
Tools, processes and
equipment
Design processes
Technology and
Cultural changes
Design Theory

Secondary
Research

Design for
manufacturing,
maintenance,
repair and disposal
Enterprise and
Marketing

NEA Start –
Spring Term

Baseline
Assessment

Testing materials

Enhancement of
materials

Material finishes

Modern and Industrial
Scales of Practice

Health and Safety

Protecting
designs and
intellectual
property

Design for
manufacturing,
maintenance,
repair and disposal

The Big Picture

Introduction to A-level Product Design developing skills in key areas in preparation for exam and NEA in year 13. Early focus will be on workshop skills and designing with theory built into each topic.

Intent

Units covered: Material areas: Wood/timber, polymers, metals and alloys, paper and boards, composite, smart and modern materials, Design presentation, CAD/CAM, Design theory, Ergonomics and Anthropometrics.

Skills covered: Practical application, independence, initiative, organization and time management

Links to previous learning: Those students who have progressed from GCSE DT will build upon skills developed especially the use of iterative design process.

Implementation**How will the units within this year of study be organised/structured?**

Units will be shared between the two teachers leading Product Design and will be complimented with independent study tasks and assessments from each area covered.

How will you promote LORIC through this year of study?

LORIC will be promoted through a range of media including flipped learning. Organisation of course folder and theory work will be essential and checked regularly. A big focus on independence will be encouraged in year 12 to enable students to flourish with completing the NEA in year 13.

Exam technique will be focused on in the lead up to mock exam periods to enable students to access top marks in questions.

Where are the WOW moments and how will you celebrate achievement?

Encouraging creativity so students can have their own input on designs linking to industry and links with universities for workshops will be encouraged.

How are literacy and numeracy skills to be developed and extended?

Maths questions will be present in the exam so work will be done to explore exam techniques in answering these questions. LR has liaised with the maths department on questions that may come up in

Assessment Markers

Low stakes assessments will occur after each theory that is taught and will be recorded.

Key assessments will be during the time of mock examinations. All independent study/flipped learning tasks will be **deep marked**.

Home learning will be weekly and related to the topic that is being covered.

Autumn Term

Wood/timber, design presentation, metals and alloys, design theory, papers and boards, polymers, smart/modern materials, CAD/CAM, Ergonomics and Anthropometrics

Spring Term

Mock NEA, Exam preparation and technique, social, moral and ethical issues, production methods

Summer Term

Commencement of the NEA.

Impact

Successful completion of year 12 in product design can build a strong foundation to succeed in year 13. The theory knowledge, design skills and practical application can all be applied to the NEA leading to a successful outcome. This can all then be built on and revisited in preparation for the summer examinations in year 13.

Next steps: The A-Level Product Design course can lead to a variety of university courses and apprenticeships. The qualification would link to a good range of future STEM careers.

The Big Picture

Year Group 13

Students will undertake their NEA which accounts for 50% of their overall grade. This will aim to be finished during the Spring term which will then lead into a theory and exam preparation period in the lead up to the exam.

Intent

Units covered: Completion of the NEA and theory knowledge from the AQA specification.

Skills covered: Practical application, independence, initiative, organization and time management

Links to previous learning: The year 13 year of study builds upon skills and knowledge from year which is applied to the NEA as well as 2 mock examinations. Independent study will mainly be based around theory.

Implementation

How will the units within this year of study be organised/structured?

NEA will be completed during lesson time and will be supplemented with a theory independent study programme in preparation for the examination

How will you promote LORIC through this year of study?

LORIC will be promoted through creative thinking and communication of design ideas and concepts.

Students focused a lot on independent working in year 12 and organizing time wisely to maximize lesson time.

Exam technique will be focused on in the lead up to mock exam periods and in the spring term to enable students to be prepared for exams

Where are the WOW moments and how will you celebrate achievement?

Encouraging creativity so students can have their own input on designs. Parental contact to celebrate achievement and participation in after school sessions and completion of deadlines will be implemented.

How are literacy and numeracy skills to be developed and extended?

Maths questions will be present in the exam so work has been done to liaise with the maths team to try and get some DT questions into maths lessons. This will help students link between subjects.

Consider your assessment Markers

Due to exam board regulations ongoing assessment of the NEA during its completion is not allowed. However a BRAG Tracking sheet will be used to inform students of completed sections of their NEA.

Independent study based on theory will be deep marked

2 / 3 Mock examinations will also be done during year 13.

Autumn Term
NEA

Spring Term
NEA/Revision

Summer Term
Revision/theory
sessions

Impact

What is it that you want students to know/be able to do by the end of this year of study?

Next steps: Students who are successful in A-Level Product Design have a strong pathway into a variety of university courses and apprenticeships. The qualification would link to a good range of future STEM careers.