

## Curriculum Map – Design and Technology

<p>What is the aim of the curriculum?</p>	<p>The aims of the KS3 DT curriculum at Open Academy is to promote exploration of practical skills and techniques, foster a love for independent problem solving and inquisitive thinking and embed knowledge of materials, cultural and social decisions in design, inspiring students to be creative and solve real-world problems. Students get experience working with woods, textiles, plastics, metals and moulding through the use of practical hand tools and automated machinery. With technology driving an impactful spin on the design world using CAD design software gives students an insight into how to produce accurate, professional and creative designs. Students are encouraged to work independently through practical trial and error, considering Health and Safety implications throughout. Practical skills are embedded and revisited throughout all practical projects developing and applying them to contexts and concepts.</p>
<p>How does it demonstrate ambition for students?</p>	<p>The aim of the KS4 curriculum is to ensure students build on their prior knowledge by revisiting the five key materials throughout Year 10. Through a series of focused mini-makes, they develop both their practical skills and their understanding of tools, processes, and material properties. This hands-on approach reinforces learning from KS3 while deepening their technical knowledge. By the end of Year 10, students are well-prepared to begin their NEA coursework, where they draw on all their learning from both KS3 and KS4 to undertake a design-and-make project with greater independence and creativity.</p> <p>The national curriculum for DT aims to ensure that all students have the opportunity to experiment and succeed with both hand tools and machine processes. The DT curriculum uses the 'Design, Make, Evaluate' structure through all projects which mirrors the GCSE coursework structure. This explores designer research through written investigation tasks, drawing and designing workshops both by hand and CAD based, product analysis to analyse and evaluate the design market with a focus on careers within design. Practical projects allow students the freedom of design to create a bespoke project. Students are challenged to strive to achieve high quality outcomes demonstrating secure knowledge of skills and showcasing them within final outcomes. Adaptive teaching and formative assessment and verbal feedback individually allows stretch and challenge for the HAP students as they are encouraged to evolve practical skills further, and apply them to more challenging contexts. An example of this would be the Year 9 project 'Reclaimed Garden Planters' where students use standard butt and box joints. Challenging students to think further about aesthetics encourages them to strive to achieve more complex techniques such as a dovetail joint which requires more accuracy and measurements involving angles. Evaluating projects continuously using oracy involving technical terminology and key vocabulary highlights areas which students can continually refine and progress throughout these practical projects. A written evaluation and assessment at the end of each project allows students to see the areas they have excelled in and feel confident showcasing and also the areas for development when working with the materials in question again. An environment where 'trying your best' is fostered into each section of learning sets ambition for students to excel in their strongest areas, but also achieve give 100% effort into areas that lack confidence and measure their own progress each time that particular skill is revisited.</p> <p>The KS4 curriculum demonstrates ambition through its focus on high expectations, high-quality practical outcomes, and in-depth learning. Students are challenged to refine and extend their practical skills through complex mini-makes that provide students with creative opportunities to work with a range of tools and materials. The curriculum builds progressively, encouraging deeper understanding of materials, tools, and processes, while promoting independent thinking and problem-solving. By revisiting core knowledge from KS3 and applying it to more advanced tasks, students are prepared to tackle the NEA with confidence and ambition, producing work that reflects a high standard of craftsmanship and thoughtful design.</p>

How does the curriculum allow time for teaching, practicing and revisiting content and for addressing gaps in student knowledge as quickly as possible?	<p>The curriculum for each year in KS3 comprises of 3 projects per year. These are Textiles, Resistant Materials and another material including but not limited to clay, thermoforming and thermosetting plastics and manufactured papers and boards. Each project mirrors the GCSE structure of coursework embedding the theory of analysing and evaluating the work of existing designers with a focus on key aesthetics. Other theory taught within each project is selected relevantly from the AQA GCSE specification to embed learning and contextual study. Starter activities focusing on retrieval practice such as open questions, cultural and social topic discussions on current affairs, recall cycle of practical skills questioning revisits knowledge on a cycle. Demonstrations at the beginning of each practical lesson revisits practical skills and open questions encourages students to think hard about the success criteria and how to show refinement and progress through final outcomes. Misconceptions are addressed based on being 'in the now' of the lesson and adapting teaching to revisit and reteach whatever is required be it theory based knowledge or practical demonstration. This may include taking a step back, revisiting the topic and reteaching to embed and ensure strong understanding. Each project has at least 8 lessons of continuous practical lessons which progresses through the required practical skills and allows students to self and peer assess both verbally and written throughout.</p> <p>The KS4 curriculum allows for effective reteaching of tricky areas through regular assessment and targeted feedback. Students are continually assessed throughout the year to identify gaps in understanding and adapt lessons accordingly. Challenging topics are revisited through homework tasks and starter activities to reinforce learning in manageable steps. Additionally, theory content is embedded within practical tasks, allowing students to make meaningful links between theoretical knowledge and hands-on application. This approach ensures that students have multiple opportunities to revisit, consolidate, and deepen their understanding of complex concepts.</p>
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<p>How is the curriculum designed to build students' knowledge and skills cumulatively? How does it pave the way for future learning?</p>	<p>Each project of 3 in the year includes tasks, predominantly literacy based which are based on theory knowledge in the GCSE specification. These include but are not limited to standard components, hand woods and soft woods, manufactured boards, The 6 R's, lifecycle of a product and natural and synthetic materials so name a few. These theory based tasks link with the materials and project ongoing at the time so matches the context of the project and intended outcome with the theory behind it as well as the career links. Students do one project each year with wood, textiles and moulding so future learning in those specific areas are built on each year. An example of this is in year 7, students make key hooks from soft woods and manufactured boards. Emphasis is on design decisions and an introduction to both hand tools and machinery such as fretsaws and sanders. Year 8 develops this further by using the same tools to make a sweet dispenser. Measurements and measuring tools are introduced to think hard about the function and quality of the product, using the same tools in a more complex context. Year 9 sees garden planters being made from reclaimed pallets. This ties all elements learnt so far up but making it more challenging as the wood is not even and always high quality. Students use their prior knowledge to assess and make design decisions and problem solve to a far more complex level. Independence of learning grows with the ability to verbally problem solve and explain decisions that are being made.</p> <p>The GCSE AQA DT course is structured as 50% coursework and 50% written exam at the end of the lesson. The coursework is a digital portfolio made up of 3 components; Research and designing, prototyping and final product and evaluation. The final product makes up ¼ of the final marks for the coursework and the portfolio tells the story of the design process.</p>
<p>How does the curriculum highlight progression routes for the subject and future career paths (Gatsby Benchmark 4)</p>	<p>All projects are made following the 'design, make, evaluate' process which mirrors the GCSE coursework structure. The theory tasks that intertwine throughout and underpin the practical work are pulled from the theory spec for GCSE meaning that constant practice is ongoing of analysing, evaluating, designing etc. Practical skills are developed throughout and applied in real life contexts which build on already strongly embedded practical skills. Career links are evident and made throughout the project alongside cross curricular links with Science, Geography, Business and Maths. Career links are evident in booklets and opportunities discussed within theory tasks. Career posters up around the room to enhance opportunities within the subject.</p>

	Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
What will be taught?	7	Wooden Key Hooks	Wooden Key Hooks	Textile Aprons	Textile Aprons	Dinosaur Electronic Lamps	Dinosaur Electronic Lamps
	8	Textile Ugly Dolls	Textile Ugly Dolls	Wooden Gumball Machines	Wooden Gumball Machines	Reclaimed pallet Bird Houses	Reclaimed pallet Bird Houses
	9	Banksy Inspired Screen Printing	Banksy Inspired Screen Printing	Garden Planters	Garden Planters	Clay Architecture	Clay Architecture
	10	Architecture	Architecture	Alessi Desk Furniture	Ergonomically designed products	GCSE Coursework	GCSE Coursework
	11	GCSE Coursework	GCSE Coursework	GCSE Coursework	GCSE Coursework	GCSE Coursework	GCSE Coursework
What key threshold concepts /core skills / themes are covered each half term?	7	Designing, Research tasks, resistant materials, practical hand tools and machines, H&S in design, Evaluating, Template and jig making.	Designing, Research tasks, resistant materials, practical hand tools and machines, H&S in design, Evaluating, Template and jig making.	Hand Embroidery, designing, applique, batik, Tye dye, hand and machine sewing.	Hand Embroidery, designing, applique, batik, Tye dye, hand and machine sewing.	Electronics including circuit boards, soldering, The 6R's, Woods and manufactured boards, machinery, designing and refining.	Electronics including circuit boards, soldering, The 6R's, Woods and manufactured boards, machinery, designing and refining.
	8	Recycling, pattern and print making, Marimekko designer research, pattern drafting, hand and machine sewing.	Recycling, pattern and print making, Marimekko designer research, photoshop, pattern drafting, hand and machine sewing.	Quality control, instruction following, measuring and marking, tolerances, machinery and hand tools, standard components, CAD.	Quality control, instruction following, measuring and marking, tolerances, machinery and hand tools, standard components, CAD.	Recycling and reusing, measuring, quality control, designing and prototyping, wood joints, client briefs and specifications.	Recycling and reusing, measuring, quality control, designing and prototyping, wood joints, client briefs and specifications.
	9	Screen printing, stencil making, pop art, culture capital, graffiti art, fabric	Screen printing, stencil making, pop art, culture capital, graffiti art, fabric	Recycling and reusing, measuring, quality control, designing and prototyping, wood	Recycling and reusing, measuring, quality control, designing and prototyping, wood	Architecture, iterative designing, mark making, refinement and client presentation, clay	Architecture, iterative designing, mark making, refinement and client presentation, clay

	Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
		manipulation, hand embroidery.	manipulation, hand embroidery.	joints, client briefs and specifications.	joints, client briefs and specifications.	modelling, finishing techniques, surface finishes.	modelling, finishing techniques, surface finishes.
	10	Mini project 1: Designing and making of an architectural structure for a developing country. Client brief and practice portfolio leading up to coursework. Working with papers and boards. Theory for exam weaves into practical lessons to embed practical and theory knowledge with contextual links. Final product is produced and evaluated to brief and spec.	Designing and making of an architectural structure for a developing country. Client brief and practice portfolio leading up to coursework. Working with papers and boards. Theory for exam weaves into practical lessons to embed practical and theory knowledge with contextual links. Final product is produced and evaluated to brief and spec.	Mini Project 2: Alessi Inspired Character Desk furniture. Designer research portfolio pages and iterative designs of an Alessi inspired, space saving product. Students use manufactured boards, 3D design techniques and various types of joints to produce a prototype. Practical work is documented in portfolios. Relevant theory work is woven into practical.	Mini Project 2: Alessi Inspired Character Desk furniture. Designer research portfolio pages and iterative designs of an Alessi inspired, space saving product. Students use manufactured boards, 3D design techniques and various types of joints to produce a prototype. Practical work is documented in portfolios. Relevant theory work is woven into practical.	GCSE coursework brief is released. Coursework begins of component 1 (analysis of context, research tasks and initial designs.) By the end of this half term, students will have a grade for component 1 of coursework.	Continuation of Component 2 of coursework. (final designs, client brief and spec and material testing) ready to prototype at the start of year 11.
	11	Beginning of component 3 of coursework (final designs, CAD, prototyping, modelling and sampling). All practical research and development is recorded in the portfolio. Theory work and revision for exam content is structured	Continuation of component 3 of coursework individual projects (final designs, CAD, prototyping, modelling and sampling). All practical research and development is recorded in the portfolio. Theory work	Practical examination begins of Component 4. modelling and final samples are complete. 30hrs of practical work towards final project is recorded. Theory is revised through retrieval starters and single lessons each week.	Practical examination continued of Component 4. modelling and final samples are complete. 30hrs of practical work towards final project is recorded. Theory is revised through retrieval starters and single lessons each week.	Final product completion. Coursework and evaluation is completed in portfolio ready for marking and submission.	Revision lessons and reteaching of theory for exam. All content is recovered. Practice exam questions and mock exams.

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		into single lessons, practical and portfolios in doubles.	and revision for exam content is structured into single lessons, practical and portfolios in doubles.				