



CURRICULUM PLAN

ELECTRONICS
BRAMHALL HIGH SCHOOL

Curriculum Intent

YEAR 7

DMA projects that help students to develop the skills, knowledge and understanding to design and make high quality 3D products and to communicate their design journey.

YEAR 8

DMA projects that help students to develop the skills, knowledge and understanding to design and make high quality 3D products and to communicate their design journey.

YEAR 9

DMA projects that help students to develop the skills, knowledge and understanding to design and make high quality 3D products and to communicate their design journey.

YEAR 10

DMA projects that help students to develop the skills, knowledge and understanding to design and make high quality 3D products and to communicate their design journey.

YEAR 11

DMA projects that help students to develop the skills, knowledge and understanding to design and make high quality 3D products and to communicate their design journey.

YEAR 7

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Yr7 students remain in a D&T subject for 12 weeks. Yr7 students rotate around all D&T subjects - 3 rotations in Yr7 and 2 in Yr8.</p>	<p>Students create a night light for a target market. They learn about specific electronic components through input process output. They learn how to populate a PCB and manufacture a casing and image through thermoplastic processing.</p> <p><i>(learning & developing)</i></p> <p>Creation of folders</p> <p>Target market</p> <p>Component Research & analysis – specification</p> <p>Safe use of soldering equipment</p> <p>Joining of components to a PCB.</p> <p>Joining of components onto wires</p> <p>Component recognition and function.</p>	<p>A = AIMS D = Design M = Make E = Evaluate T = Technical Knowledge</p> <p>A1, A2, A3, D1, D2, D3, D4, M1, M2, E1, E2, E3, T1, T2, T3, T4</p>	<p>See assessment planning</p> <ul style="list-style-type: none"> • Target Market • Resistor colour codes • Image designs • PCB Manufacture • Casing and image production • Circuit design and components list • Evaluation. 	<p>PCB Design.</p> <p>Isometric drawing of casing using 2D Design.</p>	<p>Design</p> <p>Evaluate</p> <p>Manufacture</p> <p>Circuit</p> <p>Battery</p> <p>Component</p> <p>Switch</p> <p>Resistor</p> <p>Capacitor</p> <p>Light Dependent Resistor</p> <p>Light Emitting Diode</p> <p>Solder</p> <p>Molten Transistor</p> <p>Joint</p> <p>Jig</p> <p>Client</p>

	<p>Creation of Design ideas. Resistor colour codes. Use of Circuit wizard to draw and simulate circuit function.. Circuit diagram analysis and function. Skills in drawing designs by hand. Experimentation with layering up card to form images. Creating cases using line bender and vacuum former. Creation of final product Evaluation against design criteria</p>				
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	<p>analysis and function. Creating cases using, wood cutting machinery. Planning time effectively Target market</p> <p>Tracing using light box</p> <p>Use of Circuit wizard to draw and simulate PCB function</p> <p>Use of CAD. Creation of final product Use and understanding of jigs Evaluation against design criteria Production plans</p>				
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YEAR 9

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Yr7 students remain in a D&T subject for 12 weeks. Yr7 students rotate around all D&T subjects - 3 rotations in Yr7 and 2 in Yr8.	<p>Students design and manufacture a stereo portable amplifier. This includes casing produced through CAD/CAM and development modelled through 2D design paper model and isometric representation. PCB Knowledge and production to include the introduction of numerous on and off board components.</p> <p style="color: #FFD700;">Target market</p> <p style="color: #FF0000;">Skills in drawing designs by hand (crating). Component Research & analysis – specification Skills in cutting MDF using coping saw and vibra saw. Independent advanced evaluation of existing electronic products Use of</p>	<p>AQA Design & Technology specification. A1, A2, A3, D1, D2, D3, D4, D5 M1, M2, E1, E2, E3, T1, T2, T3, T4</p>	<p>See assessment planning</p> <ul style="list-style-type: none"> • CAM plans for casing • Isometric drawing • Circuit diagram and components list • Circuit production • Casing Modelling • Casing production • Manufacturing Specification 	<p>Target market Hand drawn designs Design specification Evaluation PCB design</p>	<p>Finger joint Laser Medium density fibreboard Segment Ellipsoid Bezier parallelogram potentiometer auxiliary switch</p>

	<p>2D design Production of working drawing in isometric and casing CAM plans. Resistor colour codes. Use of Circuit wizard to draw and simulate circuit function.. Circuit diagram analysis and function. Creating cases using plastic in oven and drape former, wood cutting and CAM machining . Spray painting. Creating model prior to manufacture. Planning time effectively Use of digital camera Use of Circuit wizard to draw and simulate PCB function Use of CAD and CAM. Creation of final product Creativity and originality Evaluation against design criteria Production plans</p>				
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YEAR 10

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	<p>Mobile phone holder project. Design and make completed by all electronics students. Casing, circuit and PCB design</p> <p>Mood board</p> <p>Focus on 2D Design work.</p> <p>Laser cut phone holder and assembly.</p> <p>Casing design on 2D Design</p> <p>Circuit design to include microcontrollers</p> <p>PCB design to include microcontroller, switches, sensors, LEDs, and piezo transducer.</p> <p>Manufacture of stand and passive speaker box.</p>		<p>Circuit Design</p> <p>PCB Design.</p> <p>Casing Design and Manufacture.</p> <p>program for led circuit.</p>	<p>3rd angle orthographic projection, Smart & modern materials</p> <p>Isometric projection</p>	<p>Bitmap</p> <p>Vector</p> <p>Microcontroller program</p> <p>Push to make switch</p> <p>Light dependent Resistor</p>

	<p>Portfolio, product and design work prepared by individual students to meet the phone holder brief.</p>				
<p>Term 1b</p>	<p>Repeat for next group</p>		<p>MOCK 1 – Students sit a full GCSE Mock Exam. (non- aided the design theme is not shared with students)</p> <p>Mock feedback session</p> <p>MOCK 1 – Students sit a full GCSE Mock Exam. (non-aided the design theme is not shared wit students)</p>	<p>Casing development extra classes and catch up</p>	

Term 2a					
Term 2b			<p>MOCK 2 – Students sit a full GCSE Mock Exam.</p> <p><i>(students are supported with the theme and are prepared within lessons)</i></p>		

<p>Term 3a</p>	<p>Repeat for next group</p>		<p>Products.</p>		
<p>Term 3b</p>	<p>GCSE PROJECT THEMES ARE RELEASED BY AQA</p> <p>Students are made aware of the dept limitations for their CA projects.</p> <p>CONTROLLED ASSESSMENT STARTS</p>	<p>Reflection on the exam board set tasks. Discussion and each alternative considered.</p>	<p>Projects negotiated and deadlines agreed before summer break.</p> <p>8 A4 pages min requirement</p>		

YEAR 11

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	CONTROLLED ASSESSMENT		<p>MOCK 3 – Students sit a full GCSE Mock Exam. (students are supported with the theme and are prepared within lessons)</p> <p>Mock feedback session</p>		
Term 1b	CONTROLLED ASSESSMENT		<p>MOCK 3 – Students sit a full GCSE Mock Exam. (students are supported with the theme and are prepared within lessons)</p> <p>Mock feedback session</p>		

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Term 2a	CONTROLLED ASSESSMENT		MOCK 3 – Students sit a full GCSE Mock Exam. (students are supported with the theme and are prepared within lessons) Mock feedback session		
Term 2b	Submission of Controlled Assessment. Half term				

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Term 3a	Yr11 have tailored revision lessons to prepare them for their exam whilst exploring gaps in learning. Boosters planned and delivered to prepare students.				
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