

# 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.

Academic Year: 2023-2024

**Review Date: September 2024** 

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	YEAR 7							
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.	<ul> <li>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.</li> <li><i>(learning &amp; developing)</i></li> <li>Creation of folders</li> <li>Target market Component Research &amp; analysis – specification Safe use of soldering equipment Joining of components to a PCB. Joining of components onto wires</li> <li>Component recognition and function.</li> </ul>	A = AIMS D = Design M = Make E = Evaluate T = Technical Knowledge A1, A2, A3, D1, D2, D3, D4, M1, M2, E1, E2, E3, T1, T2, T3, T4	See assessment planning • Target Market • Resistor colour codes • Image designs • PCB Manufacture • Casing and image production • Circuit design and components list • Evaluation.	PCB Design. Isometric drawing of casing using 2D Design.	Design Evaluate Manufacture Circuit Battery Component Switch Resistor Capacitor Light Dependent Resistor Light Emitting Diode Solder Molten Transistor Joint Jig Client			

Creation of Design ideas. Resistor colour codes. Use of Circuit wizard to draw and simulate circuit function Ciorcuit 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				
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		YE	AR 8		
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.	<ul> <li>Students engage in the design and production of a flashing LED product. This includes the population of a PCB with further knowledge of discrete electronic components. MDF mould production for inclusion in a vacuum formed casing.</li> <li>Skills in drawing designs by hand.</li> <li>Skills in cutting MDF using laser cutter. Independent evaluation of existing electronic products Component Research &amp; analysis – specification Use of 2D design Production of plan view working drawing. Resistor colour codes. Use of Circuit wizard to draw and simulate circuit function Ciorcuit diagram</li> </ul>	A = AIMS D = Design M = Make E = Evaluate T = Technical Knowledge A1, A2, D1, D2, D5, M1, M2, E2, T1, T3	See assessment planning Image Designs Casing production PCB Production Circuit diagram and components list.	Development of casing. Working Drawing. Isometric drawing	Transistor Thermo plastic Polystyrene Mould Medium density fibreboard Vacuum Former Draft angle vector

	analysis and function. Creating cases using, wood cutting machinery. <b>Planning</b> time <mark>effectively</mark> Target market		
-	Tracing using light box		
C	Use of Circuit wizard to draw and simulate PCB function		
( l j	Use of CAD. Creation of final product Use and understanding of jigs Evaluation against design criteria Production plans		

	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.	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. Target market 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	AQA Design & Technology specification. A1, A2, A3, D1, D2, D3, D4, D5 M1, M2, E1, E2, E3, T1, T2, T3, T4	<ul> <li>See assessment planning</li> <li>CAM plans for casing</li> <li>Isometric drawing</li> <li>Circuit diagram and components list</li> <li>Circuit production</li> <li>Casing Modelling</li> <li>Casing production</li> <li>Manufacturing Specification</li> </ul>	Target market Hand drawn designs Design specification Evaluation PCB design	Finger joint Laser Medium density fibreboard Segment Ellipsoid Bezier parallelogram potentiometer auxiliary switch			

2D des			
	tion of working		
drawin	g in isometric and		
casing	CAM plans. Resistor		
colour	codes.		
Use of 0	Circuit wizard to		
draw a	nd simulate circuit		
functio	n		
Ciorcui	t diagram analysis		
and fur	nction.		
	g cases using		
	in oven and drape		
	wood cutting and		
CAM m	achining .		
	ainting.		
	g model prior to		
manufa			
Plannir	ng time effectively		
	digital camera		
	Circuit wizard to		
draw a	nd simulate PCB		
functio			
	CAD and CAM.		
	n of final product		
	ity and originiality		
	i <mark>on</mark> against design		
criteria			
Produc	tion plans		

		YE	AR 10		
Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term la	<ul> <li>Mobile phone holder project. Design and make completed by all electronics students.</li> <li>Casing, circuit and PCB design</li> <li>Mood board</li> <li>Focus on 2D Design work.</li> <li>Laser cut phone holder and assembly.</li> <li>Casing design on 2D Design</li> <li>Circuit design to include microcontrollers</li> <li>PCB design to include microcontroller, switches, sensors, LEDs, and piezo transducer.</li> <li>Manufacture of stand and passive speaker box.</li> </ul>		Circuit Design PCB Design. Casing Design and Manufacture. program for led circuit.	3 <sup>rd</sup> angle orthographic projection, Smart & modern materials Isometric projection	Bitmap Vector Microcontroller program Push to make switch Light dependent Resistor

	Portfolio, product and design work prepared by individual students to meet the phone holder brief.				
Term 1b	Repeat for next group	a full GCS Exam. (no design th shared w Mock fee session MOCK 1- a full GCS Exam. (no design th	E Mock en- aided the eme is not ith students) dback Students sit	development isses and catch	

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

Term 3a	Repeat for next group		Products.	
Tarma 7h		Deflection on the even	Droio etc. no motioto d	
Term 3b	GCSE PROJECT THEMES ARE RELEASED BY AQA	Reflection on the exam board set tasks. Discussion	Projects negotiated and deadlines agreed	
		and each alternative	before summer	
	Students are made aware	considered.	break.	
	of the dept limitations for			
	their CA projects.		8 A4 pages min requirement	
	CONTROLLED			
	ASSESSMENT STARTS			



	YEAR 11							
Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy			
Term la	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 1b	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 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	
Term 2b	Submission of Controlled Assessment. Half term	session	

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