

## Key Stage 3 Curriculum Progress Map: Year 8 Design Technology

Topic Titles	Project 1: CAD/CAM				Project 2: Electronics				Project 3: Headphone Wrap				
	Slotted Animal: 2D Design				USB Torch				Solidworks: 3D Printing				
	Knowledge and Understanding	Skills	Literacy	Numeracy	Knowledge and Application	Skills	Literacy	Numeracy	Knowledge & Understanding	Skills	Literacy	Numeracy & ICT	
ASSESSMENT CRITERIA	1	<ul style="list-style-type: none"> <li>Understand that drawings are a combination of shapes.</li> <li>Understand the terms 'design brief' and 'specification'.</li> </ul>	<ul style="list-style-type: none"> <li>Use shapes creatively to draw range of animals that meets the design brief.</li> <li>Design a slotted animal that can stand up with minimum of three parts.</li> </ul>	Spelling, punctuation and grammar is used accurately to improve sentence structure.	Identify geometric shapes such as pentagon, rectangle, hexagon, triangles, etc.	<ul style="list-style-type: none"> <li>Learn what input process and output means.</li> <li>Name a variety of input and output components.</li> </ul>	<ul style="list-style-type: none"> <li>Select the relevant personal protective equipment (PPE).</li> <li>Identify hazards in a practical classroom and assess the risks.</li> </ul>	Spelling, punctuation and grammar is used accurately to improve sentence structure.	To be able to measure accurately in both CM and MM.	<ul style="list-style-type: none"> <li>Learn the term 'Product Analysis' and understand why this form of research is used.</li> <li>Understand the benefit of rendering when drawing design ideas.</li> </ul>	<ul style="list-style-type: none"> <li>Apply rendering techniques to design ideas to show texture and tone.</li> <li>Apply isometric crating skills and techniques to your own design.</li> </ul>	Spelling, punctuation and grammar is used accurately to improve sentence structure.	To be able to measure accurately in both CM and MM.
	2	<ul style="list-style-type: none"> <li>Learn the term 'design constraints' and understand why designers have to address them.</li> <li>Write a design specification taken from the initial design brief.</li> <li>Learn a range of key words used to describe the aesthetic and physical properties of a product.</li> </ul>	<ul style="list-style-type: none"> <li>Design a slotted animal that can stand up with minimum of four or more parts.</li> <li>Self-motivate weekly and set time goals.</li> <li>Work with patience and perseverance to create a fully functional design.</li> </ul>	Use subject specific key words and language appropriate to both written and oracy tasks.	Produce simple graphs, including pie charts and histograms from data collected.	<ul style="list-style-type: none"> <li>Learn and understand the meaning of renewable and non-renewable sources of energy.</li> <li>Understand why designers complete a product analysis prior to designing.</li> <li>Learn and describe the function of an LED and PTM switch and its universal symbol.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and select the relevant tools and equipment for the task.</li> <li>Apply knowledge of input, process and output to everyday items and systems around you.</li> <li>Work safely in a practical classroom, following the 'Passport to Safety' document.</li> </ul>	Use subject specific key words and language appropriate to both written and oracy tasks	Understand the basics of computer control (input, process and output).	<ul style="list-style-type: none"> <li>Learn how to draw basic cubes and cuboids in isometric view.</li> <li>Learn how to draw and edit basic shapes in 2D Design and contour bitmap images.</li> </ul>	<ul style="list-style-type: none"> <li>Use the results of the product analysis to suggest ideas and improvements to your own design.</li> <li>Quality control check your work throughout designing and making.</li> </ul>	Use subject specific key words and language appropriate to both written and oracy tasks.	Use tally charts when collecting statistics.
	3	<ul style="list-style-type: none"> <li>Learn the advantages and disadvantages of CAD.</li> <li>Learn the advantages and disadvantages of CAM.</li> </ul>	<ul style="list-style-type: none"> <li>Quality control check your work throughout designing and making.</li> <li>Use the results of peer assessments to suggest improvements to your design.</li> </ul>	Write coherent paragraphs using a range of discourse markers (linking words).	Be able to understand and apply the principle of radius, diameter and circumference.	<ul style="list-style-type: none"> <li>Learn and describe the function of a capacitor and its universal symbol.</li> <li>Learn the advantages and disadvantages of solar power and wind power.</li> </ul>	<ul style="list-style-type: none"> <li>Solder safely and independently, following the demonstration in lessons.</li> <li>Learn and understand the process of resin casting and the industrial process of injection moulding.</li> </ul>	Write coherent paragraphs using a range of discourse markers (linking words).	Have an understanding of basic formula in electronics: Ohms Law.	<ul style="list-style-type: none"> <li>Learn how to annotate design ideas correctly using the annotation frame.</li> <li>Create a fully functional prototype to scale using dimensions given.</li> </ul>	<ul style="list-style-type: none"> <li>Design ideas have been labelled with information including parts and features.</li> <li>Design ideas show a high level of imagination and creativity and reflect the research collected.</li> </ul>	Write coherent paragraphs using a range of discourse markers (linking words).	Be able to understand and apply the principle of radius, diameter and circumference.
	4	<ul style="list-style-type: none"> <li>Create a fully functional prototype and understand why designers use them.</li> <li>Learn how to draw basic shapes in 2D Design.</li> <li>Learn how to edit shapes using nodes.</li> </ul>	<ul style="list-style-type: none"> <li>Test the prototype identifying problems with the design and suggest improvements.</li> <li>Use 2D Design independently to create a slotted animal that resembles your original design.</li> <li>Evaluate your final model against your original specification.</li> </ul>	<ul style="list-style-type: none"> <li>Write in full sentences giving reasons and justifications for your answers (explaining why).</li> <li>Retrieve information and meaning from written texts to understand what is being read.</li> </ul>	<ul style="list-style-type: none"> <li>Draw and produce templates to aid batch production.</li> <li>Recalling: be able to use quick addition without the use of a calculator.</li> </ul>	<ul style="list-style-type: none"> <li>Learn the advantages and disadvantages of geothermal and wave power.</li> <li>Learn the advantages and disadvantages of tidal and biofuel.</li> <li>Describe how energy is generated from fossil fuels and how energy can be stored.</li> </ul>	<ul style="list-style-type: none"> <li>Draw and test an accurate circuit diagram using Yenka software and universal symbols.</li> <li>Demonstrate an understanding of the impact of using fossil fuels.</li> <li>Identify problems in your circuit and suggest ways to improve it. Apply quality control measures.</li> </ul>	<ul style="list-style-type: none"> <li>Write in full sentences giving reasons and justifications for your answers (explaining why).</li> <li>Retrieve information and meaning from written texts to understand what is being read.</li> </ul>	<ul style="list-style-type: none"> <li>Be able to calculate area and volume of a liquid.</li> <li>Calculate quantities of materials, costs and sizes.</li> </ul>	<ul style="list-style-type: none"> <li>Learn and describe the advantages and disadvantages of designing using CAD.</li> <li>Learn and describe the advantages and disadvantages of manufacturing using CAM.</li> <li>Learn how to export to Solidworks and extrude without open contours.</li> </ul>	<ul style="list-style-type: none"> <li>Use 2D Design and Solidworks independently, providing peer support if possible.</li> <li>Apply knowledge of CAD and CAM to the world around them and evaluate its impact.</li> <li>Identify problems in your Solidworks design and suggest ways to improve it.</li> </ul>	<ul style="list-style-type: none"> <li>Write in full sentences giving reasons and justifications for your answers (using PEEL).</li> <li>Retrieve information and meaning from written texts to understand what is being read.</li> </ul>	<ul style="list-style-type: none"> <li>Draw in both 2D and 3D by hand and using Computer Aided Design.</li> <li>Recalling: be able to use quick addition without the use of a calculator.</li> </ul>