Rayner Stephens HIGH SCHOOL

Year 10 – Design and Technology						
Curriculum intent	GCSE Design and Technology enables learners to design and make products with creativity and originality, using a range of materials and techniques. Small projects, focusing on key principles, form the start to the course, with a major project featuring in Year 11. This will involve a significant design and make task, with a high degree of independent work. The aim of the curriculum is that through the delivery of small projects learners are prepared for work and life in the 21st century.					
Term	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Knowledge	**Wood and Metal Focus** Health and Safety training forms the basis of the first lesson. Term 1 is spent exploring ergonomics, learning how to tackle longer written questions, 3d sketching and the application of CAD. Practical learning during this term consolidates the theory and design stages. Key elements of theory are mapped against these projects and reflect the rigour seen in full GCSE paper, from which	**Wood and Metal Focus** • Wood origin, types and conversion • Man-made boards and their applications • Wood stock forms, cutting and joining techniques • OCC puzzle • Isometric Drawing • Metal production • Metal stock forms, shaping and joining • Aluminium photo-frame, including jigs and production aids	**Plastics, CADCAM and Sustainability** Term 2 is planned to assist learners in developing their technological understanding.	**Plastics, CADCAM and Sustainability** • Plastics types • Thermoforming • Test-tube vase – 2D CAD • 3D CAD for development drawings – bud vase • Precious plastics and the role of the 6R's • Modern CAM including 3D Printing and laser cutting	**Extended Project – USB Lamp** Term 3 is intended to mimic a mini project covering the NEA next term giving learners the chance to work independently The typical sections of research, specification, design, development, manufacture and evaluation are all covered here.	Term three focusses on the NEA, which will form 50% of the GCSE qualification. Upon release of the NEA task, leaners devote their attention to generating quality research sheets for their design portfolio.

	much of the material is derived.					
Skills	• Graphics, coverin g sketching in 2D and 3D • Technical drawing; mathematical terms and measurement • Isometric drawing of simple components • Modelling in foam to produce scale prototypes • Graphics based covering sketching in 2D and 3D • Quality outcomes produced using workshop skill	• Graphics, covering sketching in 2D and 3D • Technical drawing; mathematical terms and measurement • Isometric drawing of simple components • Modelling in foam to produce scale prototypes • Graphics based covering sketching in 2D and 3D • Quality outcomes produced using workshop skill	Understanding scale and applying maths within Design and Technology. The impact of a crowded planet. Sketching to capture ideas. Using card to produce high-quality models. Applying sections and cutaways to aid idea communication. Graphics based covering sketching in 2D and 3D.	Understanding scale and applying maths within Design and Technology. The impact of a crowded planet. Sketching to capture ideas. Using card to produce high-quality models. Applying sections and cutaways to aid idea communication. Graphics based covering sketching in 2D and 3D.	• The 6 R's • Precious plastics • Sustainable Timber • Recycling Metals • The morals of sustainability	• The 6 R's • Precious plastics • Sustainable Timber • Recycling Metals • The morals of sustainability
Assessments	Wood theory test, with extended written question. Practical outcome.	Ergonomics for furniture question. Practical outcome.	Material properties and finishes question. Practical outcome	Scales of Production and QC/QA. Practical outcome.	Electronic systems, including input, process and output. 2Practical outcome from USB light project.	Practical outcome from USB light project.

Rayner Stephens HIGH SCHOOL

Enrichment	Sketching Supporting the NEA. https://youtu.be/laU_oXtUU-E https://www.bbc.co.uk/bitesize/topics/zj63cdm/resources/1	Sketching supporting the NEA. https://youtu.be/laU_oXtUU-E https://www.bbc.co.uk/bitesize/topics/zj63cdm/resources/1	Modelling in cardboard. Supporting the NEA. https://youtu.be/z0nhQonMbH8 https://www.bbc.co.uk/bitesize/topics/zcwhfg8/resources/1	Modelling in cardboard. Supporting the NEA. https://youtu.be/z0nhQonMbH8	Disruptive Designs. Knowledge and understanding of invention, inventors and iconic design… Design Process Curriculum (jamesdysonfoundation.com)	Sketching supporting the NEA https://youtu.be/laU_oXtUU-E