Beamont Collegiate Academy Curriculum Map
Year: 9
Subject: Design & Technology

Intent	Implementation	Carousel 1 (9 weeks)	Carousel 2 (9 weeks)	Carousel 3 (9 weeks)	Carousel 4 (9 weeks)
Clarity around knowledge	Theme / topic	**Let there be Light – Control Systems (Electronics & Mechanisms)**	**Food - Ages and Stages** To be completed by KMA on return from maternity leave.	**Formal Drawing - Plug me in Project**	**Food – Malnutrition** To be completed by KMA on return from maternity leave.
	Key substantive knowledge	• Understand a range of motions – Rotary, Oscillating, Linear & Reciprocation • Understand a range of mechanisms – Levers, linkages, gears & pulleys • Measuring & marking out materials • Using CAD to produce designs for CAM (Laser Cutting) • Understanding of structures and triangulation • Using soldering equipment and materials to solder components • Single and Series Circuits • Electrical current & voltage and resistance • Input, Control & Output processes • Know what a short circuit is and how to correct • Using available resources to develop soldering skills to produce a working product • Know how the Laser Cutter works and used • Understanding of applied forces • Understanding of how electricity is controlled within circuits using basic components		• Use OBLIQUE and PERSPECTIVE drawing skills • Use 2pt PERSPECTIVE to design and draw a 3D object • Use grid paper to learn how to draw in ISOMETRIC • Draw curved shapes and ellipses inside crated rectangles • Learn how to use a 30º/60º set square to draw in isometric • To use ORTHOGRAPHIC drawing techniques to draw the Front, Side and Plan view of an object • To develop confidence with Orthographic drawing techniques and to draw an electronic component • To assess understanding of and confidence in using, ORTHOGRAPHIC techniques • To produce three electronic plugs to develop orthographic projections in 1st angle • To show you understand how to draw in Oblique, 2pt perspective, Isometric and Orthographic projection	
	Disciplinary knowledge	• Use a range of hand tools, machines, and manufacturing processes to manufacture a working product • Use mathematical principles to construct and design a fully realised product • Understand the importance of symmetry in design		• To recognise the difference between First Angle and Third Angle projection • To use rendering techniques to show 3 tones indicating the dark, medium, and light faces of the objects	

		• Develop knowledge of CAD & Techsoft 2D Design • Soft Soldering Practice • Soldering Input, control, and output components • How the Laser Cutter works and used • Properties of Materials – Acrylic, Vinyl, Metal & Wood • Using basic components (Resistors) to control the flow of electricity in circuits • Understand the characteristics of materials to assemble and complete products		• To present precisely and accurately Front, Side and Plan views in 1st angle projection • To use the skills learnt to draw an electronic component of your choice in 3D • To use shading to model a 3-D finish • Label the sides of an isometric drawing using parallel arrow measurements	
Clarity around sequencing	Main links across the curriculum	Production processes, use of tools, machines and CAD/CAM are all interlinked through focussed practical tasks: Year 7 - Materials Project, Year 8 – Hold It Project.		This scheme builds on and reinforces prior knowledge and skills gained during year 7 – **Introduction to Engineering (technical) drawing**.	
	Authentic cross curricular links	Science & Maths		Art & Maths	
Vocabulary	Key words	Mechanisms – Gears, Pulleys, Levers, Linkages Motions – Linier, Reciprocation, Input, Control & Output		Oblique, Perspective, Parallel, Converge, Vanishing Point. Construction lines, converge, shading, Tone, Crating, Isometric, Grid paper, Ellipse, Distortion, Opposite, Adjacent, Hypotenuse Plan view, projection, first angle, third angle,	
Assessment	Summative assessment	**Focussed Practical Task:** **Formative Assessment Throughout:** Making/Manufacturing Outcome **Summative Assessment:** 1 x end of project test/assessment		**Design Assignment:** **Formative Assessment Throughout:** The Design Process will be assessed throughout the project (Theory booklet). **Summative Assessment:** 1 x end of project test/assessment	
Links to the real world / careers / PD		Manufacturing industries, specifically electronics and control systems.		Engineering drawing and draftmanship, The Built Environment and Architecture.	

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