Beamont Collegiate Academy Curriculum Map

Year: 8

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	**Food - Nutrition for life**	**Advanced mechanisms**	**Computer aided Design Project (Vector & Bitmap based technical drawing)**	**'Hold It' Project (Focussed Practical Task)**
	Key substantive knowledge	• To understand the role of digestion and nutrients in the body • To b able to link the eatwell guide to nutrition and understand the need for varied, balanced and nutritious diet. • To handle different equipment safely and correctly, including cutting techniques. • To develop a range of different cooking skills including using the oven/hob. • Planning and preparing dishes • Create creative ideas to inspire their product/dishes • Literacy skills in using descriptive words to describe a product/dish/menu, etymology of cooking terminology • Numeracy skills in weighing out ingredients	• To understand how more advanced mechanical systems can be used to enable changes in movement and force. • To understand the difference between pneumatic and hydraulic actuators and how to choose between them. • To understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. • To understand the Engineering Design Process and how engineers solve real and relevant problems within an engineering context. • How to develop and communicate design ideas using annotated sketches, detailed plans and 3D models.	• To understand how to respond to a client's design brief and fulfil the requirements. • How designers generate ideas. • How to identify and understand the purpose of Bitmap and Vector graphics. • Understand how to create and manipulate and combine shapes using selection tools, and pathfinder tools. • To understand how to present a design towards a specific client/target audience.	• Contextual designing introduced • To gain knowledge and skills of using the design process to find a solution to a design brief. • To use hand tools, power tools, and workshop machinery with accuracy/precision and to understand their characteristics. • To produce a high quality, functional realised product. • To understand how to market a design towards a specific client/target audience. • Understand and use both CAD & Cam – specifically Laser cutting and CNC machine.
	Disciplinary knowledge	• To be able to describe the function and source of a range of macro and micronutrients. • To learn about different nutrients and vitamins our body needs. • To be able to apply the knowledge of nutrition to the planning of meals • To learn how to make healthy nutritious meals and snacks • To learn about food labelling; traffic light code, use by and best before date and what is required by law.	• Understand the impact of technology on daily life and the wider world. • Produce high quality prototypes using biomimicry and user-centred design. • Critique, evaluate and test ideas and the work of others. • Develop specifications to inform the design of articulated, multi axis robotic parts. • Test, evaluate and refine ideas. • Investigate new and emerging technologies. • Understand the impact of technologies on society and the	• Respond to a design brief showing understanding of the required needs of the client. • Research to identify and understand the needs of the client. • Identify the purposes and differences between Vector and Bitmap graphics. • Understanding the use of tools and processes to create Vector and Bitmap Graphics. • Generate research to inspire original creative ideas and avoid stereotypical responses. • Develop and communicate design ideas	• Produce a design brief outlining a solution to a problem. • Produce a detailed product analysis. • Understand the differences between Manufactured Timber, Softwoods and Hardwoods. • Use specific hand tools to produce a mechanism • To recognize and understand that products are manufactured using different scales of production, depending on the quantity of items being made. • To be familiar with the systems used to manufacture one-off, batch and mass-produced items.

			environment and the responsibilities of engineers.		
Clarity around sequencing	Main links across the curriculum	Following on from Y7 where students cover healthy lifestyles and sustainability, we will continue to add depth around the healthy eating message, discussing what makes food healthy (nutrients) and how to plan and prepare for healthy living, ensuring we get a variety of nutrients.	Understand how more advanced mechanical systems can be used to enable changes in movement and force. Understand the Engineering Design Process, how engineers solve problems and the responsibilities of engineers.	Understanding of the iterative design process applied to all design and make projects – Define, Design, Develop, Deliver.	Understanding of the iterative design process applied to all design and make projects – Define, Design, Develop, Deliver.
	Authentic cross curricular links	Science, PE, Citizenship/PSHE,	Science, PSHE, English, Maths, IT.	IT, Art, Maths, Business Studies	ICT, Business Studies, History
Vocabulary	Key words	Digestion Nutrition Nutrients Macronutrients Micronutrients Composite	Mechanisms, Hydraulic Pneumatic Actuators Force Levers Fulcrum	illustration, Graphic, Vector, Raster, Bitmap, Rasterize, Pathfinder, Illustration, Anchor Point, Path, Intersect, Unite, Overlap. Divide	Problem, Solution, Analysis, Scale of Production, Continuous flow, Just in Time (JIT), One-off production, Batch production, Mass production. Engineered Timber, Softwood, Hardwood, Coniferous, Deciduous.
Assessment	Summative assessment	**Formative Assessment Throughout:** Practical lessons will be assessed 'on the spot' with detailed and specific feedback being given while students work. This is reactive and instant. **Summative Assessment:** 1 x end of project test/assessment	**Formative Assessment throughout**. Peer review and WCF **Summative Assessment** 1 x end of project assessment and evaluation.	**Illustration Project:** • Understanding of Tools and Processes exercises. • Design Process and Ideas. • Brand Design and Evaluation.	**Focussed Practical Task:** **Formative Assessment Throughout:** Making/Manufacturing Outcome **Summative Assessment:** 1 x end of project test/assessment
Links to the real world / careers / PD		Healthy eating and healthy lifestyles: life skill Hospitality industry Food and retail industry	Engineering, mechatronics, robotics,	Graphic Design Illustrator Examples of professional portfolios on ***Behance*** who use Adobe Creative Suite. Introduction to Pentagram	Industrial manufacturing processes – One off, Batch, Mass production & Continuous flow. Just In Time Production - KanBan