Curriculum Plan & Knowledge Mapping

SUBJECT: _____DT_____ **YEAR GROUP**: ___10 _

Curriculum Intent:
Students look at the design problems they can solve. Students will learn how to be able to define design problems for themselves and address the solutions to them. The designing activities undertaken will enable our students to consider the needs of individuals and society within both our own community and the wider world.

Key Knowledge and End Points for Academic Year: (What are the fundamental concepts and ideas that students must have grasped by the end of the Academic Year)

- To demonstrate the necessary knowledge, understanding and skills required to undertake iterative design processes of exploring, creating and evaluating.
- To demonstrate the mathematical and scientific knowledge, understanding and skill and apply in design and technology.
- Technical principles - the impact of new and emerging technologies on industry, enterprise, sustainability, people, culture, society and the environment, production techniques and systems
- Designing and making principles - understand that all design and technological practice takes place within contexts which inform outcomes, demonstrate an ability to write a design brief and specifications from their own and others' considerations of human needs, wants and interests

Term	Termly Focus (Summary e.g. texts/ overview))	Core Knowledge & Threshold Concepts *The minimum all students should know i order to access later concepts*	No excuse vocabulary	Revisiting Opportunities *(e.g. when past topics can b revisited)*	Depth and Breadth: Links to wider curriculum & SMSC *(e.g. different subjects or ke stages)*
Autumn 1	**Theory content:** Unit 1 - New and emerging technologies	To know and apply a breath of technical knowledge and understanding of the characteristics, advantages and disadvantages of the industry, including unemployment, workforce skill set, demographic movement.	Planned Obsolescence Engineered Quality Upgrading & Function Fashion & Trends Market Share Planned or Built-in Obsolescence	**People culture society** Developments in **industry** affecting **production** and the **environment** KS3 Power sources Energy generation Smart materials Components	**Science -** levers, linkages **SMSC-** cultures, beliefs, spending habits **Humanities** – sustainability, recycling, 6/8R'S, alternative energy sources
Autumn 2		Mini NEA To understand what is required to produce a "good" piece of coursework. To understand how to structure a high-quality NEA Practice turning a 3D sketch into 3D card model	Ergonomics Standardised components Lean manufacturing JIT Design fixation Reliability Longevity Lifespan	• Research **KS3** • Inspirational Designers **Year 9** • Specification **KS3** • Testing & Evaluation **KS3** • Designing **KS3**	**ICT** - Use of ICT, 2D Design, Google Sketch Up, Photoshop or Illustrator Software to create illustrations and technical drawings **Maths** – measurements, conversions, scaling **Art**- perspective drawings

		• Research • Inspirational Designers • Specification • Testing & Evaluation • Designing • Prototyping • Critical evaluation of technologies • Contemporary and future scenarios • Ethical and environmental perspectives.	Disposability	• Prototyping **KS3**	
Spring 1	**Theory content - Unit 2:** Materials Core Content	To know and apply a breath of technical knowledge and understanding of the characteristics, advantages and disadvantages of the industry, including unemployment, workforce skill set, demographic movement.	Demographic movement Crowd funding Enterprise Apprentice Automation Lifecycle analysis Production systems Finite Non-finite	New knowledge	**SMSC-** cultures, beliefs, spending habits **Maths -** measurements, conversions, scaling
Spring 2	**Theory content: Unit 3 -** Energy, materials devices and systems	To understand how energy is generated from fossil fuels and renewable sources To understand how power is stored To understand how systems are powered by different forms of generated energy To know how to choose appropriate power sources when designing systems and products.	Quality Control, gears, CAMS, pulleys, flowcharts, input, output, fossil fuels, thermochromic, pigment, react, resistant	Electronics, systems, programmable components Year 8/9	**Science –** Energy, types of movement, physics, flowcharts **Maths –** analysing data, systems, calculations, velocity, ratio, flowcharts
Summer 1	Non-Examined Assessment (NEA)	✓ Specified by title release from exam board.	Investigate Questionnaire Survey Market research Product analysis	Consolidation of spiral learning throughout KS3 and mini NEA Autumn 2	**ICT –** portfolio completed on ppt **Maths-** analysing data, graphs

		Introduction to the contextual challenges and start of the investigation. Focus on strategies and user needs and wants. ✓ Research ✓ Specifications ✓ Initial Designs ✓ Initial Prototype	Target market		
Summer 2	**Theory content:** Unit 4 - Specialist technical principles Tools, equipment and processes	To know how materials are cut shaped and formed to a tolerance To know the preparation and application of surface treatments and finishes To know types of forces and reinforcing materials	Stress Force Tolerance Polymers Sustainable Tensile Compression Shear Bending Torsion	Surface treatments and finishes *(differentiated year 9 projects)*	**Science-** forces and stresses