KS3 Design and Technology – Product Design

D&T intent	To teach the ability to solve problems creatively, using technological knowledge underpinned by the evolution of design. Students will learn how to use a variety of tools and materials to complete a practical project.										
D&T Core concepts	Creative problem Solving		Design knowledge		Technical knowledge		**Cultural and environmental awareness**		**Culinary knowledge**		**Nutrition and health**
	Year 7				Year 8				Year 9		
Conceptual Knowledge	Learning about health and safety protocols, basic design principles and how to use a variety of different tools and materials to create a final functioning product.				Learning about health and safety protocols, basic design principles and how to use a variety of different tools and materials to create a final functioning product.				Learning about health and safety protocols, basic design principles and how to use a variety of different tools and materials to create a final functioning product.		
Procedural Knowledge	How to produce a physical product in a safe, controlled manor. To explain material knowledge such as : polymers, timbers and metal types. Students will need to be able to design, make, evaluate and improve (the iterative process). In year 7 students produce three separate elements: circuit board, wooden housing and an acrylic diffuser. They will assemble this product and then evaluate their progress and recall previous knowledge through summative assessment. They will also learn how to use CAD/2D Design.				How to produce a physical product in a safe, controlled manor. To explain material knowledge such as : polymers, timbers and metal types. Students will need to be able to design, make, evaluate and improve (the iterative process). In year 8 students produce a clock inspired by 21st century design that is made using a mortise and tenon joint and develop their knowledge gained in year 7 on how to use CAD/2D Design.				How to produce a physical product in a safe, controlled manor. To explain material knowledge such as : polymers, timbers and metal types. Students will need to be able to design, make, evaluate and improve (the iterative process). In year 9 students they learn about sustainability and upcycling to develop a sweet dispenser while developing woodwork skills and understanding of cams and mechanisms.		
Key vocabulary FRAYER MODELS	Specification Soldering Modelling Component Alloy Ferrous metal Non-Ferrous metal Polymer				Specification Orthographic Modelling Computer Aided Design Tessellation Computer Aided Manufacture Computer Numerically Controlled Polymer				Orthographic Soldering Modelling Computer Aided Design Computer Numerically Controlled Welding Biodegradable Biomimicry		
Lesson 1			Health and safety and rules of the classroom				Health and Safety				Health and Safety
Lesson 2			Introduction				Introduction				Introduction
Lesson 3			Research				Isometric drawing				Research
Lesson 4			Perspective drawing				Modelling				Orthographic Drawing

Lesson 5		Electronics		Modelling		Isometric Drawing	
Lesson 6		Soldering		Orthographic Drawing		Modelling	
Lesson 7		Soldering		CAD		Modelling	
Lesson 8		Soldering		CAD		CAD	
Lesson 9		Soldering		2D Design		Woodwork	
Lesson 10		Joint		Polymers and Designs		Woodwork	
Lesson 11		Joint		Clock Designs		Woodwork	
Lesson 12		Joint		Designs and CAD		Woodwork	
Lesson 13		CAD		Designs and CAD		Woodwork	
Lesson 14		Woodwork and Heat bonding		Joint		Wood theory	
Lesson 15		Woodwork		Wood theory		Woodwork	
Lesson 16		Woodwork		Woodwork		Woodwork	
Lesson 17		Assessment		Assessment		Assessment	
Lesson 18		Evaluation		Theory		**Evaluation**	

Hinterland

Our personal journeys – anecdotes, connections, experience of Hospitality and catering, real life examples.

Conceptual Knowledge

The building blocks of knowledge, Food Science (Culinary knowledge and skill), Cultural and Environmental awareness and understanding of nutrients, how some work together and what foods provide these and the effect of different cooking methods on them.

Procedural Knowledge

How to think like a cook and not how to cook to creatively solve problems in response to a contextual design brief.