



Year Group	Scheme of Work / Discipline	Knowledge	Skills & Techniques	
7	DT / Graphics <i>Drawing skills</i>	<ul style="list-style-type: none"> Annotate a drawing effectively to explain features of a design How to use and produce working drawings Describe how mathematical modelling and computer-based tools are used to communicate design ideas 	<ul style="list-style-type: none"> Word moulding - crating Perspective drawings (1 & 2 pt) Isometric drawings Orthographic projections Exploded views Enhancement techniques, such as line weighting, crating, rendering. Etc. 	
	DT / CAD <i>Lucky Charm - Metallurgy</i>	<ul style="list-style-type: none"> CAD CAM advantages and disadvantages Metallurgy, extraction, classification & properties, processing of metal products Life Cycle Assessment considering 6R's & SMSC Functions of packaging 	<ul style="list-style-type: none"> Techsoft CAD introduction. Design Process Casting and finishing of products. Card folding & production of package 	
	DT <i>Wooden Toy</i>	<ul style="list-style-type: none"> Health & Safety – Risks & Hazards, Safety procedures and Safety signage Introduction to design process and alternative creative techniques Timber – material classification, properties and processing 	<ul style="list-style-type: none"> Modelling as design development Introduction to practical skills and processes using wood working hand tools Wood finishing techniques 	
	Engineering <i>MicroBit</i>	<ul style="list-style-type: none"> TBC 	<ul style="list-style-type: none"> 	
	Food <i>Food origin and seasonality</i>	<ul style="list-style-type: none"> apply the principles of nutrition and healthy eating. Understand the source, seasonality and characteristics of a broad range of ingredients 	<ul style="list-style-type: none"> Cook a repertoire of predominantly savoury dishes selecting and preparing ingredients, using utensils and electrical equipment, applying heat in different ways, using awareness of taste, texture and smell to decide how to season dishes and combine ingredients, adapting and using their own recipes 	
8	DT <i>Key designers</i>	<ul style="list-style-type: none"> Influence of others (Dieter Rams, Jony Ives, Braun and Apple) Evaluate and analyse to assist in designing. Classification of materials – polymers, origins, applications and stock forms, end of life. 	<ul style="list-style-type: none"> CAD techniques Design process and modelling Use of tools to accurately mark out designs. Cutting, shaping and finishing techniques Combining materials Evaluating design ideas and outcomes 	
	Engineering / DT <i>Nightlight</i>	<ul style="list-style-type: none"> Health & Safety – Safety procedures and signage in a workshop environment. Recap Timber – material classification & properties Understanding basic discrete component and their symbols, circuits and circuit design 	<ul style="list-style-type: none"> Introduction to hand tools and wasting techniques Introduction to soldering and PCB's Introduction to wood joints Introduction to CAD/CAM – laser cutter Practical skills and finishes for plastics and timbers 	
	Food <i>Healthy eating</i>	<ul style="list-style-type: none"> study Special Dietary needs understand how a poor diet can contribute to a range of health issues understand how to improve the nutritional value of dishes. 	<ul style="list-style-type: none"> selecting, preparing and manipulating ingredients, using utensils and applying heat in different ways. They will develop their ability to adapt recipes successfully to allow for personal preference development of products. learn to conduct a Sensory analysis. 	
9	Design Technology	Mechanisms Automaton or grabber	<ul style="list-style-type: none"> Orthographic and isometric drawing recap Introduce Mechanisms 	<ul style="list-style-type: none"> Testing and efficiency
		Designer Furniture	<ul style="list-style-type: none"> Influence of designers of new products Material knowledge - Wood and timbers Anthropometrics and ergonomics 	<ul style="list-style-type: none"> Use of appropriate tools and equipment Working to scale Production techniques to produce models
		RPT CAD	<ul style="list-style-type: none"> Introduction to CAD/CAM and rapid prototyping Introduction of 3D CAD packages and use in design Designing skills, reacting to a brief 	<ul style="list-style-type: none"> Model making skills Using CAD to design 3D objects, working with a 3D package
		Textiles, Papers and Boards	<ul style="list-style-type: none"> Materials – textiles, papers & boards Commercial manufacturing processes 	<ul style="list-style-type: none">

10	Engineering	Metals Key Organiser	<ul style="list-style-type: none"> Materials knowledge – metals & Alloys tolerances awareness of health and safety. Using PPE and risk assessments orthographic drawings and engineering conventions/dimensioning 	<ul style="list-style-type: none"> reading and understanding orthographic drawings, engineering conventions, dimensioning marking out methods using rule, square, dividers measurement with varying degrees of accuracy, shaping and finishing, filing, use of abrasives cutting: using hacksaw, tinsnips following a provided production plan workshop safety procedures
		Electronics Introduction to circuit design and discrete components	<ul style="list-style-type: none"> Problem solving – System blocks Analysing situations Components and symbols Electronic CAD 	<ul style="list-style-type: none"> Designing with CAD & breadboard
		Structures	<ul style="list-style-type: none"> Understanding Structural systems Calculating factor of safety, weight/load ratio. Analysing failed structure for evidence of compression failures, distortion and buckling under load. 	<ul style="list-style-type: none"> Working in teams, build different structures from lightweight materials and destructively test. Testing for behaviour and failure modes in torsion and bending.
		CAD/CAM Intro and small house robot	<ul style="list-style-type: none"> Introduction of 3D CAD packages and use in design engineering Testing using CAD simulation, for stress or to articulate and test movements. Introduction to CAM – 3D Printers 	<ul style="list-style-type: none"> Using CAD to design 3D objects, working with a 3D package, using parametric constraints, and functions such as extrude, shell, chamfering with methods of joining or locating components eg mating. Outputting 3D designs for CAM processes including rapid prototyping, CNC milling, routing.
		Microcontrollers Walking robot	<ul style="list-style-type: none"> Introduction to microcontrollers (PIC) Introduction to Programming skills Mechanical systems Designing to constraints 	<ul style="list-style-type: none"> Producing their own PIC test board Applying mechanical systems to produce movement Attaching and programming autonomous movement with PICS
	Food & Nutrition	Nutrition and food preparation <i>Including basic skills recap</i>	<ul style="list-style-type: none"> Hygiene & safety, Nutritionally balanced meals & RDAs awareness of cross-contamination, preparation of meat/fish/alternatives Water & Hydration Macronutrient: Carbohydrates, Proteins & Fats Gelatinisation 	<ul style="list-style-type: none"> Chopping, knife skills, use of hob; boiling, simmering & reduction Safe preparation of chilli pepper Produce a nutritionally balanced meal Assessed practical
		General nutrition and Vitamins & minerals	<ul style="list-style-type: none"> How peoples' nutritional needs change and how to plan a balanced diet for different life stages understand: Basal metabolic rate (BMR) and physical activity level (PAL) The relationship between diet, nutrition and health. The major diet related health risks. Vitamins: Fat soluble & Water soluble Minerals: Functions - Main sources, effects of deficiency and excess 	<ul style="list-style-type: none"> Fruit Preparation Seasoning with spices Group sensory task
		TBC	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
		TBC	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
		TBC	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
	Design Technology	Lighting/lamp & Microcontrollers	<ul style="list-style-type: none"> Polymers and manufacturing methods Recap on mechanisms Introduction to electronics and microcontrollers 	<ul style="list-style-type: none"> Soldering and electronics skills Tolerances and CAD/CAM
		Get a grip – can you dig it? Garden Implement	<ul style="list-style-type: none"> Metals and manufacturing methods Finishes and commercial processes 	<ul style="list-style-type: none"> Manufacturing Hand tools and machinery and practise of use Turning, and multi-material joining methods
		Starting NEA Coursework	<ul style="list-style-type: none"> Introduction to contexts and themes Analysis of problems Folder organisation 	<ul style="list-style-type: none"> Product analysis Client requisites Initial ideas
		Engineering	Aerodynamics	<ul style="list-style-type: none"> Introducing aerodynamics systems Thrust, drag, lift and additional forces
Pneumatics			<ul style="list-style-type: none"> Introduction of Pneumatics systems System design and circuit diagrams System parts and uses Extension of mechanism knowledge look at similar devices that perform the same function including disassembly 	<ul style="list-style-type: none"> Using pneumatics to activate or control mechanical systems single and double acting cylinders examine different ways of doing things making judgements about the effectiveness of existing solutions.

		Casting and Testing	<ul style="list-style-type: none"> Hot metal and commercial manufacturing processes Factors of safety and testing procedures 	<ul style="list-style-type: none"> Casting and mould production CAD Testing of an object
		Starting NEA Coursework	<ul style="list-style-type: none"> Introduction of new contents Folder production and organisation Applying analysis of ideas to choose Project 	<ul style="list-style-type: none"> Production of Coursework folder and initial analysis and ideas development
	Food	Proteins, Antioxidants, Vitamins and Minerals	<ul style="list-style-type: none"> Revise functions & sources of Protein Revise protein structure: <ul style="list-style-type: none"> amino acids HBV & LBV sources & complementation 	<ul style="list-style-type: none"> Explore cultural diets Falafel Exploring nutritional modification & fortification Nutrition analysis Vegetarian recipe development
		TBC	•	•
		TBC	•	•
	11	DT	NEA coursework	<ul style="list-style-type: none"> Continuing with NEA coursework, until March Revision for exams
Engineering		NEA Coursework	<ul style="list-style-type: none"> Continuing with NEA coursework until March Then revision for exams 	•
Food & Nutrition		NEA Coursework Units	<ul style="list-style-type: none"> Introduction to final unit 1 & 2 NEA coursework. (May only be one unit this year) Production of NEA units Revision for exams 	•