Textiles

Long-Term Plan

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 10 Design and technology	Topics to be covered:	**Topics to be covered:** Design and technology and our world	**Topics to be covered:** Design and technology and our world Developments in modern and smart materials, composite materials and technical textiles	**Topics to be covered:** Developments in modern and smart materials, composite materials and technical textiles Natural, synthetic, blending and mixed fibres and woven, non-woven and knitted textiles (Part 1)	**Topics to be covered:** Natural, synthetic, blending and mixed fibres and woven, non-woven and knitted textiles (Part 2)	**Topics to be covered:** Natural, synthetic, blending and mixed fibres and woven, non-woven and knitted textiles (Part 3)	**Topics to be covered:** NEA (Part 1) Develop and apply core knowledge and skills
	Skills to be developed:	**Skills to be developed:** An understanding of the following topics: The impact of new and emerging technologies. How the critical evaluation of new and emerging technologies informs design decisions.	**Skills to be developed:** An understanding of the following topics: How energy is generated and stored in order to choose and use appropriate sources to make products and to power systems.	**Skills to be developed:** An understanding of the following topics: Interactive textiles Micro-fibres Phase changing materials Sun protective clothing Nomex Geotextiles Rhovyl Sources, origins, physical and working properties of fibres and fabrics and their ecological and social footprint.	**Skills to be developed:** An understanding of the following topics: The way in which the selection of materials or components is influenced by a range of factors. The impact of forces and stress on materials and objects. Stock form, types and sizes. Alternative processes that can be used to manufacture products.	**Skills to be developed:** An understanding of the following topics: Specialist techniques and processes that can be used to shape, fabricate, construct and assemble a high-quality prototype. Appropriate surface treatments and finishes. Designing and making principles for natural and manufactured timbers.	**Skills to be developed:** An understanding of the following topics: All design and technological practice takes place within a contexts which inform outcomes. Identifying and understanding user needs: collecting primary and secondary data. Writing a design brief and specifications Investigating environmental, social and economic challenges
	Key assessments taking place:	**Key assessments taking place:** Design and technology and our world (Part 1) assessment	**Key assessments taking place:** Design and technology and our world (Part 2) assessment	**Key assessments taking place:** Smart materials assessment	**Key assessments taking place:** Natural, synthetic, blending and mixed fibres and woven, non-woven and knitted textiles assessment (part 1)	**Key assessments taking place:** Natural, synthetic, blending and mixed fibres and woven, non-woven and knitted textiles assessment (part 2)	**Key assessments taking place:** Develop and apply core knowledge and skills assessment (Part 1)
	Key vocab	Market pull Technology push.	Renewable Non-Renewable Fossil fuels	Interactive textiles Micro-fibres	Applied finishes Fabric finishes Surface decoration	Prototype Iterative design process	User Stakeholder Context

		Consumer choice Product Life Cycle Global production Legislation Consumer rights Moral, Social and ethical Sustainability CAD/CAM Economic Environmental issues SIX R's Life Cycle Analysis Fair-trade Carbon footprint Ecological footprint	Generation Storage Electroluminescent Quantum Tunnelling Composite (QTC) Shape memory alloys Polymorph Photo-chromic Thermo-chromic Micro-encapsulation Biometrics Carbon Fibre Kevlar GRP	Phase changing materials Sun protective clothing Nomex Geotextiles Rhovyl Fabric construction Wrap Weft Straight grain Selvedge Applique Function Fabric specification Handle Absorbent Drape Monomer Filament Lamination Hydrophilic membrane Quilting Pesticides Ecosystem Insecticides Finate resources Recyclable Biodiversity Fast fastion Throwaway culture Biodegradable Thermoforming fibres	Texture Insulation Interfacing Applique Stabilise Lining Boning Bias binding Bias Components Fastenings Lay plan Cross grain One-off Batch CAM Straight-line production Progressive bundle Cell production	CAD Seam allowance Tolerance Raw edge Tessellate Resist method Bondaweb Mordant Toile Deconstructed	Primary Secondary Data Needs Wants Values Collecting Briefs Specification Client Design fixation Criteria Economics Environmentally friendly Throwaway society Linear economy Circular economy Cradle-to-cradle Cultural awareness Anthropometrical Ergonomic
	Opportunities for retrieval practice: Questioning, 'Do now' tasks, quizzes, home learning tasks, revision sessions, end of term test and assessments are all used for retrieval practice each half term.						

		Term 1a	Term 1b	Term 2a	Term 2b	Term 3a	Term 3b
Year 11 Design and technology	Topics to be covered:	**Topics to be covered:** NEA (Part 2) Develop and apply core knowledge and skills	**Topics to be covered:** NEA (Part 3) Develop and apply core knowledge and skills	**Topics to be covered:** NEA (Part 4) Develop and apply core knowledge and skills	**Topics to be covered:** Materials	**Topics to be covered:** Electronic systems and programmable components Mechanical components and devices	
	Skills to be developed:	**Skills to be developed:** An understanding of the following topics: Exploring and developing ideas and	**Skills to be developed:** An understanding of the following topics: Using different design strategies. Developing, communicating,	**Skills to be developed:** An understanding of the following topics: Designing and developing prototypes	**Skills to be developed:** An understanding of the following topics: Thermoforming and thermosetting polymers Ferrous and non-ferrous metals	**Skills to be developed:** An understanding of the following topics: How electronic systems provide functionality to	

		testing, critically analysing and evaluating work. Investigating and analysing the work of past and present professionals and companies.	recording and justifying design ideas	Making informed and reasoned decisions and responding to feedback	Natural and manufactured timbers Papers and boards Natural, synthetic, blended and mixed fibres	products and processes The use of programmable components The functions of mechanical devices to produce different sorts of movement.	
	Key assessments taking place:	**Key assessments taking place:** Develop and apply core knowledge and skills assessment (Part 2)	**Key assessments taking place:** Develop and apply core knowledge and skills assessment (Part 3)	**Key assessments taking place:** Develop and apply core knowledge and skills assessment (Part 4)	**Key assessments taking place:** Material assessment	**Key assessments taking place:** Electronics and mechanism assessment	
	Key vocab	Testing Evaluating Development Modelling Critical Refinement Modification	Brainstorming Collaboration User-centred Systems Formal Informal Dimensions Isometric Oblique Perspective Systems Schematic Diagrams Annotation Exploded Models Presentation Flowcharts Audio Visual	Prototypes Low-fidelity High-fidelity Informed Reasoned Decisions Responding Feedback Testing Surveys Questionnaire A/B Testing	Grams per square Micron Virgin fibre paper Recycled paper Hardwood Softwood Manufactured boards Ferrous Non-ferrous Alloy Polymer Natural polymers Biopolymers Thermoforming Thermosetting Fibre Cellulosic fibres Protein fibres Synthetic Microfibre Twill weave	Subsystem Sensor Signal Integrated circuit Input Process Output Microcontroller Driver Feedback Embedding Program flowchart Subroutine Debug Printed circuit board Motion Force Mechanism Mechanical system Lever Amplify Fulcrum Effort Load Lever arm length Linkage Spur gear Pinion Shaft	
	Opportunities for retrieval practice: Questioning, 'Do now' tasks, quizzes, home learning tasks, revision sessions, end of term test and assessments are all used for retrieval practice each half term.						