Farmor's School Design and Technology Department

"Good buildings come from good people, and all problems are solved by good design." Stephen Gardiner

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Design & Technology at Farmor's is a fundamental subject that underpins the curriculum of other subjects such as maths, science, engineering and art. Design and Technology education makes an essential contribution to the creativity culture, wealth and well-being of the nation. We cover a range of theory and practical skills to enable students to have an inclusive experience that is informative of the world around us focussing on current real-life issues such as the environment as well as user centred design.

We feel it important that students experience not only practical skills but also understand the 'why' in what we are teaching and how it is important. This is supported by theory such as researching, problem solving and studying the work of others as well as analysis. We encourage creativity and imagination so students have autonomy of their outcomes. Design and Technology students stay with their teacher all year round and experience all specialist areas that are involved in the subject this includes CAD/CAM, electronics as well as wood, plastic and metal, we encourage sustainability in line with the wider world needs and sometimes use recyclable materials to make products.

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	Term 1		Term 2		Term 3	Term 4		Term 5		Term 6
Year 7 Unit 1: Interactive book Unit 2: Autometer toys Unit 3: Passive speaker	**Technical knowledge** **T**onal shading Tools & equipment Sources & origins Interactive mechanisms Motions Sustainability	**Research** Children's Animated films Specification	**Design** Prototyping Drawing techniques Rendering/fine liner Design selection of mechanisms Planning and preparation of making Card modelling	**Make** Health & Safety Craft knife Suitable material choices Quality of outcome, working mechanisms and properties	**Evaluate** Testing and evaluating Testing against the specification.	**Technical knowledge** 1pt perspective Modelling Techniques Freehand Sketching Natural and manufactured timbers CAMS and followers	**Research** Pixar animated films Questionnaire for user group feedback Retro design	**Design** 1pt perspective to communicate in 3D Graphical drawing Rendering and tonal shading	**Make** Pillar drill Hand tools Cutting and shaping Retro Decoupage Marking & measuring Jigs	**Evaluate** Testing of final product. Peer assessment.

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	Term 1		Term 2		Term 3		Term 4		Term 5		Term 6	
Year 8 Unit 4: HDPE keyrings Unit 5: Touch torch Unit 6: Sweet dispenser	**Technical knowledge** Sustainability 6R's The role of the designer Renewable and non-renewable resources Polymers	**Research** Plastics in oceans Boyan Slat Charity research Quantitative and qualitative research Packaging symbols Environmental impacts	**Design** 3D & tonal shading Isometric drawing Fonts & typography Colour context	**Make** H&S of equipment Quality control Communication & planning Hand tools Craft knife skills	**Evaluate** ACCESSFMM Evaluating the work of others		**Technical knowledge** Electronic components Circuits Assembly processes Plastic forum	**Research** Specialist vocabularys	**Design** Generate design ideas 1pt perspective drawing Annotation & Labelling Rendering Tonal shading Net development	**Make** Hand tool processes polymers Wood joints Finishes Pillar drill Disk sanding Component assembley/dissassembly Testing	**Evaluate** Evaluating the work of others Evaluation of modelling

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	Term 1		Term 2		Term 3	Term 4		Term 5		Term 6
Year 9 Unit 7: Pewter pendant Unit 8: Ergonomic Toothbrush Unit 9: Wooden box	**Technical knowledge** CAD/CAM Ferrous/non-ferrous Moulds Risk assessments Specification	**Research** Design movement –Memphis Quantitative & qualitative research	**Design** 2D Design 1pt perspective Iterative design	**Make** Prototyping Modelling Tools & equipment Pillar drill	**Evaluate** Evaluate against user centred design specification	**Technical knowledge** 3D & Tonal shading Ergonomics & anthropometrics Simulating the constraints of the user Iterative design ACCESSFM Design brief and specification Production methods Natural timbers	**Research** Existing product research	**Design** Iterative design Isometric drawing SOAR Annotation Exploded views	**Make** 3D foam prototype Packaging Modelling simulation Wood joints Finishes	**Evaluate** Peer evaluation of ideas

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	**Design Technology & Our World** How has technology changed? Impact of Technology on Industry and Enterprise Product Life Cycle Analysis People, Culture and Society Legislation and Consumer Rights Moral and Ethical Factors Sustainability Production Techniques and Systems Sustainability and Environmental Issues Social, Cultural, Economic and Environmental Responsibilities The 6 'R's of Sustainability Life Cycle Analysis/Assessment Fairtrade Carbon and Ecological Footprints Energy Generation and Storage	**Smart Materials** What is a 'Smart Material'? Examples and Uses of Smart Materials Electroluminescent Material Quantum Tunnelling Composite (QTC's) Shape Memory Alloys (SMA's) Polymorph Photochromic Pigment Thermochromic Pigment Micro-encapsulation Biomimetics (Biomimicry) What is a 'Composite'? Carbon Fibre Reinforced Polymer (CFRP) Glass Reinforced Plastic (GRP) Kevlar **Design & Make** Timber box	Electronic Systems and Programmable Components: How electronic systems provide functionality to products and processes. The use of programmable components to embed functionality into products in order to enhance and customise their operation. **Design & Make** Box continued	**Functions of Mechanical Devices** Different types of motion Mechanical Systems Mechanical Components Levers Linkages Cams Springs Gears Belt Drives Rack and Pinion **Design & Make** Lamp CAD/CAM Laser cutting Polymers Electronics	**Materials** Paper and Boards Natural & Manufactured Timber Ferrous & Non-Ferrous Metals Thermoforming & Thermosetting Polymers Fibres and Textiles **Design & Make** Lamp continued	Start of NEA Context analysis Chosen context Client questionaire Client interview Client profile Research Summer homework: primary and secondary research

GCSE exam board: Eduqas

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 11	.NEA Section C - generating design ideas Section D - developing ideas	NEA Section E - realising design ideas	NEA Section E - realising design ideas	Revision Units 1, 2 & 3	Revision Units 4,5,6 & 7	

GCSE exam board: Eduqas

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 12	Architecture Design & Build Technical drawing; Third Angle Orthographic Isometric 1&2 point perspective Third angle orthographic CAD/CAM 2D Design/ laser cutting Properties of materials Safe working practices Polymers Heat manipulation of plastics Iterative design process Design research Modelling & development Scale architectural model		**Product-Jewellery Design** Iterative design process Metal processes; Heat treatment of metals Annealing Wrought ironwork Copper/aluminium/steel Pewter casting Ferrous & Non Ferrous Centre lathe Joining methods Finishes CAD/CAM Metal clay Modelling Quality control Ergonomics Anthropometrics	**Furniture Design & Build** Cutting lists Independent manufacture Natural & manufactured timbres Steam bending Wood veneer Laminating Finishes Wood joints Adhesives Components & temporary fixings Testing Evaluating		Exploration towards Personal Investigation Research techniques Identifying design possibilities Designer research Modelling in response to research in Creative statement Summer homework: Primary research to contribute towards Personal Investigation
Year 13	NEA	NEA	NEA	Revision		

A level exam board: Eduqas