WALTON HIGH SCHOOL – KS3 CURRICULUM OVERVIEW FOR "Design and Technology"

Year Group	Food Technology	Textiles Technology	Resistant Materials	Graphics & CAD [Y7] Electronics & CAD [Y8]	Extension Graphics modules
7 D&T in Year 7 and Year 8 is planned as a 2 year program covering the National Curriculum requirements. Students study 4 modules of 9 weeks during the year. The rotation allows them to experience 8 curriculum D&T areas during the Key Stage 3.	**Main topics** Food Safety, Hygiene and Nutrition.	**Main topics** Fabric Construction techniques, Fabric dying and hand stitching.	**Main topics** Mechanisms and movement, wood work construction in natural and manmade timbers.	**Main Topics** Computer graphics, hand rendering and compliant material modelling.	**Main Topics** Character development, perspective drawing and paper engineering.
	Additional Info Practical cooking each week following the school recipe booklet. Skills developed to support the nutrition focus. Each cook pushes the use of new equipment and improved time management.	**Additional Info** Geometric forms and artist links used to influence the design of the product. Use the wax relief method with fabric dye, then hand applique and sewing machine construction of a cushion cover.	**Additional Info** Hand tools used to construct an automata from wood with internal cam mechanism. Finish applied through painting. Packaging made to support the design of the product.	**Additional Info** Combination of skills used to construct a working 3D board game from compliant materials. Packaging developed used CAD giving a professional appearance. The games are evaluated when played in the class.	**Additional Info** Create a script for a cartoon which is then recreated with drawings; rendering techniques used and perspective drawings encouraged. Paper engineering pop up cards created from the characters.
8 In the June of Y8 students opt for their preferred subjects in D&T for Y9 from the 4 disciplines; Food technology, Textiles technology, Resistant Materials or Graphics	**Main topics** Cooking for teenagers Understanding what the body needs through its life time.	**Main topics** Creating a lined product with machine and hand applique. Incorporating CAD/CAM embellishment.	**Main topics** Working with metal and plastics. Understanding industrial manufacture. Use of CAD/CAM.	**Main Topics** Soft soldering components onto a circuit with a copper wire switch.	**Main Topics** History of architectural styles, modelling skills developed supported with engineering technical drawings,structures.
	Additional Info Practical cooking each week following the school recipe booklet. Skills developed and a wide variety of equipment used. Time pressures and presentation add to the challenge.	**Additional Info** A tablet case is produced with a lined construction, applied additional fabrics for the design, additional fastening and a CAD/CAM sublimation print detail.	**Additional Info** 4 products made from aluminium, copper and acrylic. Students silver solder a ring, produce an enamelled badge, CADCAM laser cut a keyring and form an aluminium stand for all parts to be displayed.	**Additional Info** Battery powered toy, assembled with line bent acrylic casing and CAD developed graphics. Using jigs and templates with QC/QA checks completed at each stage.	**Additional Info** Specialist equipment used to develop architectural drawings, orthographic elevations and develop 3D models. Links made to careers in design and engineering.

WALTON HIGH SCHOOL – KS3 CURRICULUM OVERVIEW FOR "Design and Technology"

Year Group	Food Technology	Textiles Technology	Resistant Materials	Graphics
9 Year 9 is organised with 4 modules in a year that the students have opted for they see 2 specialisms in the year. Organised into 9 week blocks. Specialism 1 they see in module 1 and 3 Specialism 2 they see in module 2 and 4. **Rationale for the organisation** This allows students to have had an in depth experience in 2 areas before they are asked for their whole school GCSE option choices.	**Food 1** **Main topics** Food Science A range of recipes with more advanced skills completed weekly. A focus on the function of ingredients and practical investigation	**Textiles 1** **Main topics** Textiles techniques and samples including; • Sublimation printing • Stencilling • Hand embroidery • Brusho	**Resistant Materials 1** **Main topics** Free standing picture frame with turning display. Precision wood joints made in natural timber; with construction created using hand tools and machinery. Hand painted finish.	**Graphics 1** **Main Topics** Hand graphics used to develop TV and Film directors storyboarding layouts. Film camera angles explored, professional graphics techniques used. Careers linked to graphics industries discussed. CAD – Photoshop software used for Film / TV advertising.
	Food 2 **Main topics** Nutrition and Health A more advanced approach to nutritional needs. Weekly cooking to reflect the nutritional theory taught in lessons.	**Textiles 2** **Main topics** Construction of a garment which is wearable which includes a pocket and incorporates the embellishment techniques trialled in Textiles 1 Theory surrounding smart materials and emerging technologies	**Resistant Materials 2** **Main topics** Exterior metal product made for the garden, wind powered movement driving a mechanism. Aluminium sections, folded and fabricated. Environmental and sustainable issues covered in theory lessons.	**Graphics 2** **Main Topics** Computer Graphics used to develop typography and advanced Photoshop skills developed for Image editing. Computer vector based software used to create commercial music merchandise. 3D Point of Sale displays for these concert items are made from compliant materials.

WALTON HIGH SCHOOL – KS4 CURRICULUM OVERVIEW FOR "Design and Technology"

Year Group	Autumn Term (Sept-Dec)	Spring Term (Jan-March)	Summer Term (March- May)	Summer Term (June-July)
10 **AQA D&T** Graphics	**Main topics** CONCEPT CAR DESIGN • Crating technique, isometric drawing • Marker rendering • 3D CAD drawing linked to 3D printer • Marketing presentation • DTP Car magazine layout	**Main topics** EASTER EGG PACKAGING • QC/QA – Papers and boards theory • Printing, finishing and compliant • materials • 2D surface development nets • Evaluation against specifications	**Main topics** ARCHITECTURE • Perspective drawings of interior and exterior views, layout plans • Prototype model of restaurant interior • Photography and Overlays • Maths Exam questions linked to topic	**Main Topics** **INTRODUCTION of NEA coursework from – 1st June** **Section A** Research and Analysis **Section B** Design Brief & Specification
Resistant Materials	**Main topics** METALS • Sources and origins, working characteristics. • Forming /shaping and joining and finishing metals all with practical examples - Scales of production PLASTICS • Sources and origins, stock forms • Plastic processing / CAD/CAM – laser cutting • Smart and modern materials	**Main topics** TIMBER AND MANUFACTURED BOARDS • Origins and sources, categories • Specialist forming techniques and finishes • Wood joints and KD fittings – samples of all techniques • Ecological and social footprint	**Main topics** PRACTICE NEA PROJECT • Introduction to context and brief • Produce a competitors scan • Product disassembly • Consider work of key designers, produce mood boards • Sketch, model and evaluate ideas	**Main Topics** **INTRODUCTION of NEA coursework from – 1st June** **Section A** Research and Analysis **Section B** Design Brief & Specification
Textiles	**Main topics** CORE PRINCIPLES • Production techniques • Sustainability in textiles • Smart and modern materials • Material properties • Advanced practical skills; including pleating, tie dye, quilting , CAD and batik	**Main topics** BAG PROJECT • Technical drawings • Design principles, orthographic projection • Construction of a functional bag decorated with techniques learnt in the autumn term	**Main topics** DRESS PROJECT • Health and safety • Materials and components • Specialist tools and equipment • Fibres and yarn / Scales of production • Construction of functional dress using advanced techniques	**Main Topics** **INTRODUCTION of NEA coursework from – 1st June** **Section A** Research and Analysis **Section B** Design Brief & Specification
11 **AQA D&T** Graphics Resistant Materials Textiles	**Main topics** **Section C** • Initial ideas • Iterative ideas • Sampling of techniques; photographed **Section D** • Developed ideas • Modelled examples • Final design • Manufacturing Specification	**Main topics** **Section E** • Construction of prototype • Step by step photographs of manufacture **Section F** • Evaluation of final product • Testing and suggested Modifications of the product **SUBMISSION OF NEA COURSEWORK Portfolio and Product**	**Main topics** EXAM PREPARATION • Revision of Section A – Core technology • Revision of Section B – Specialist Technical principles • Revision of Section C – Design and Making Principles	**PUBLIC EXAMINATIONS**

CORE TECHNOLOGY THEORY [1] DELIVERED

CORE TECHNOLOGY THEORY [2] DELIVERED

GCSE D&T [G / RM / TX] SAME CONTENT

GCSE D&T [G/RM/TX] SAME CONTENT

WALTON HIGH SCHOOL – KS4 CURRICULUM OVERVIEW FOR "Design and Technology"

Year Group	Autumn Term (Sept-Dec)	Spring Term (Jan-March)	Summer Term (March- May)	Summer Term (June - July)
10 **AQA** Food Preparation and Nutrition	**Main topics** **FOOD, NUTRITION AND HEALTH** • Nutritional needs through life • Diet related diseases • Nutritional analysis • Allergens and Intolerances • Weekly recipes to reflect taught theory	**Main topics** **FACTORS AFFECTING FOOD CHOICE** • Moral, ethical and religious food choices • Food and Culture • Sensory theory • Weekly recipes to reflect taught theory	**Main topics** **FOOD PROVENANCE** • Food sources and production • Sustainability • Food commodities • Food miles and carbon footprints • Weekly recipes to reflect taught theory	**Main Topics** **MOCK NEA 2 [coursework]** • Introduction to coursework • Focus on core skills and development • Planning and delivering a meal to fit a brief
11 **AQA** Food Preparation and Nutrition	**Main topics** **NEA 1 [coursework]** from 1st September • Introduction to exam board brief • Research and hypothesis • Preparing investigations • Conduction of investigations to prove /disprove hypothesis • Analysis of findings	**Main topics** **NEA 2 [coursework]** from • Introduction to exam board brief • Research and analysis • Visit into school from local chefs • Focus on core skills and development of 3 course menu • Nutritional labelling • Costing of ingredients • Sensory evaluation **FOOD PRACTICAL EXAM**	**Main topics** **EXAM REVISION** • Macro and micro nutrition • Energy balance • Recipe modification • Food safety • Cooking methods • Preservation • Food provenance • Sustainability • Exam technique	**PUBLIC EXAMINATIONS**

WALTON HIGH SCHOOL – KS5 CURRICULUM OVERVIEW FOR "Design and Technology"

Year Group	HT1 (Sept-Oct)	HT2 (Nov-Dec)	HT3 (Jan-Feb)	HT4 (March-April)	HT5 (April-May)	HT6 (June-July)
A LEVEL PRODUCT DESIGN [2 Year course] AQA **12** **Theory is taught and students work on related practical projects so they experience the application of theory therefore improving understanding.** **Theory covered in Y12 is for Paper 1.**	**Main topics** **Theory** • Plastics, properties of plastics, plastic processing • Smart and Modern materials **Designing and Practical** • Practical electronics • Phone holder • LED night light	**Main topics** **Theory** • Composite materials • Compliant materials • Metals, properties uses and processing **Design and Practical** • Fabrication and applied finishes to copper • CAD/CAM 2D & 3D drawings; then pewter casting. • Isometric and orthographic drawing • 3D printing playing pieces	**Main topics** **Theory** • Timber and manufactured boards • Responsible design • Circular Economy **Design and Practical** • Hinged box with multiple wood joints • Maths Qs linked with manufacture • Exploded view	**Main Topics** **Theory** • Material properties and industrial testing • QC/QA • Modern Manufacturing **Design and Practical** • Advanced technical practical skills – lathe, pipe bending, steam bending, brazing, welding	**Main topics** **Theory** • Design Eras, Design movements and Key designers **Design and Practical** • Concept modelling of product influenced by a design era **INTRODUCTION of NEA** coursework • Context and objectives • Client profile • Research and Analysis	**Main topics** **Y12 Mock Examination** NEA Coursework • Design Brief • Design Specification
13 **Focus on NEA [Non Exam Assessment] Coursework** **Theory for Paper 2**	**Main topics** **Y13 Mock Exam [Paper 1]** **Design and Practical NEA coursework** • Initial idea drawings • Concept modelling • Interim evaluation of model with client	**Main topics** **Theory** • Design Process • Human needs • Human factors **Design and Practical NEA coursework** • Development into final design • working scale model • Rendered, orthographic , dimensioned and exploded view • Manufacturing begins	**Main topics** **Y13 Mock Exam [Paper 2]** **Theory** • Environmental, sustainability and product safety • Major developments in technology • Product life cycle **NEA coursework** • Manufacture • Step by step plan / CPA • Evaluation & Testing	**Main topics** **Theory** • Green Design • Patents and Design Law **NEA coursework completed** **Revision for Paper 1 and Paper 2**	**Main topics** **Revision for Paper 1 and Paper 2** **Exam questions and Mathematics questions worked through .**	**PUBLIC EXAMINATIONS**

WALTON HIGH SCHOOL – KS5 CURRICULUM OVERVIEW FOR "Design and Technology"

Year Group	HT1 (Sept-Oct)	HT2 (Nov-Dec)	HT3 (Jan-Feb)	HT4 (March-April)	HT5 (April-May)	HT6 (June-July)
Food Science and Nutrition Certificate Level 3 WJEC [1 Year course] **12**	**Main topics** NUTRIENTS • Health and safety • Proteins • Lipids • Carbohydrates • Minerals • Vitamins • Water	**Main topics** NUTRITION AND HEALTH • Nutritional intake and issues • Function of nutrients • Diet and medical conditions • Relationship between diet and health	**Main topics** COURSEWORK • Research of brief • Nutritional needs of individuals • Menu selection to meet a brief	**Main Topics** COURSEWORK • Nutritional labelling • Analysis of meals to fit a nutritional profile **PRACTICAL EXAM**	**Main topics** REVISION • Analysing case studies • Health and safety • Dietary needs • Exam technique with practice papers	**PUBLIC EXAMINATIONS**
	PRACTICAL LESSONS TO REFLECT TAUGHT THEORY					
Food Science and Nutrition Diploma Level 3 WJEC [2 Year course] **13**	**Main topics** PROPERTIES OF FOOD • Food properties • Food production situations • Investigations and comparisons • Innovative cooking techniques	**Main topics** COURSEWORK • Introduction to coursework • Brief and analysis • Roles and functions of ingredients • Selection of investigations to assess brief	**Main topics** COURSEWORK • Investigations carried out • Analysis of aim, success criteria, hypothesis, method, controls and results of investigations.	**Main topics** COURSEWORK Continues • Content as detailed from Jan- Feb	**Main topics** EXAM PREPARATION • Practice exam technique • Revision of all topics • **Completion of 8 hour exam [split over multiple sittings]**	**PUBLIC EXAMINATIONS**
	PRACTICAL LESSONS TO REFLECT TAUGHT THEORY / EXAM PRACTICE					