Design Technology Curriculum by Academic Year

During Key Stage 3 students rotate through the four DT subjects over the course of the academic year, e.g.: Weeks 1 – 20 Food & Textiles Weeks 21 – 39 Resistant Materials & Graphics		
Year Group	**Subject**	**Curriculum Overview**
Y7	Food	• Food safety and hygiene • Kitchen equipment • Know your cooker. • Eat-well guide. • Dietary fibre • Researching ingredients for scones • Weighing and measuring ingredients • Producing a time plan • Evaluation • Sensory analysis Practical Lessons: • Fruit Salad • Fruit Crumble • Pizza Toast • Fruit Cookies • Pasta Salad • Scones
	Home Learning:	• Teams quiz linked to essential knowledge organiser books. • Organising ingredients and containers for practical lessons • Scones research • Organising ingredients and containers for practical lessons
	Graphics	• Isometric Drawing- basic shapes • Logo Design • Superhero Design • Photoshop fill menu • Photoshop shape tool • Photoshop pen tool • Photoshop Transform function. • Assembly skills - cutting, scoring, folding, gluing. • Vacuum forming. • Isometric drawing and shading. • Evaluation.
	Home Learning:	• Superhero Mood board
	Resistant Materials	• Introduction to health and safety in the workshop • Identifying essential tools and equipment • Identifying key parts of machinery used in project. • Research into design theme- mind map of animal categories • Symmetry task- practice accuracy in drawing by drawing a symmetrical picture in preparation for designing.

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		• Design task- design 2 different glasses stand. with colour and annotation- peer assess. • Complete final design using colour and fine liner. • Create a model of chosen design to check dimensions. • Make product in the workshop using tools, equipment and machinery. • Reading comprehension home learning task on softwoods and hardwoods. • Record the manufacture of making the product. • Isometric drawing of final product using 3D drawing skills and rendering techniques • Test the product and evaluate the product
	Home Learning:	• Independent research into animal design theme • Microsoft forms quiz
	Textiles [Design Brief: Design and make a storage item to raise money for an animal charity]	• Safety in the textiles area. • Naming textiles equipment • Label sewing machine. • Sewing machine driving test. • Learn to thread the sewing machine. • Complete a variety of decorative and construction samples. • Complete 2 Initial designs and one developed final design annotating features using technical terminology. • Produce pattern pieces for applique developing functional mathematical and drawing skills. • Pinning and cutting fabrics accurately • Manufacture the storage item based on the final design using a variety of skills developed throughout the topic. • Evaluate the form and function of your product
	Home Learning:	• Investigation of chosen animal charity • Microsoft Teams Knowledge Retrieval Quiz
Y8	**Food**	• Food hygiene and safety • Personal hygiene • Food safety procedures • Functions of ingredients in bread, cakes and shortcrust pastry • Macronutrients: fat, carbohydrates, protein • Researching ingredients and design ideas for Focaccia • Weighing and measuring ingredients • Producing a time plan • Evaluation • Sensory analysis **Practical Lessons:** • Bread • Decorated mini cakes. • Pasties • Bolognese Sauce • Stir-Fry • Decorated Focaccia
	Home Learning:	• Teams quiz linked to essential knowledge.

		• Research ingredients for focaccia
	Graphics	• One-Point perspective- cubes • Two-point perspective- rectangles. • Typography • Brand Identity and Logo Design • Photoshop skills • Sublimation printing and heat pressing. • Screen Printing • Die Cut packaging. • Vacuum forming • 2d design • Keyring design • Laser cutting • Blister packaging assembly • Evaluation
	Home Learning:	• The Environmental Impact of Paper Production
	Resistant Materials	• Analysis of Design Brief and Specification – 'what makes a good product' mind map. • Video about sustainability of natural timber, comprehension exercise and logo research • Research into types of motion and CAM Mechanisms • Product analysis- studying existing products, students design their own toy based on research. • Working drawing using accurate measuring skills. • Identifying essential tools and equipment needed to complete product. • Home learning – research into existing toys with mechanisms • Machinery task- identifying parts of machine, H&S precautions, students complete sample test and assess. • Record manufacturing stages of making the product. • Research task- research into 'resistant materials' • Evaluate product. • Rendering task using accurate drawing techniques
	Home Learning:	• Independent research into existing wooden toys and their working properties and mechanisms
	Textiles [Design Brief: Design and make an educational toy for a child aged 0-3.]	• Analysing and evaluating existing toys on the market and skills developed from different types children's toys and play. • Recap practical knowledge from Y7-Health and safety and operating the sewing machine. • Complete sewing samples. • Complete 2 initial designs and one developed final design that meet the specification points. • Annotate final design with correct technical terminology (understanding of appropriate techniques, fabrics and components). • Modify and produce pattern pieces for your educational toy to replicate your final design. Making • Pin and cut pattern pieces from fabrics understanding how to be economical.

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		• Include a variety of hand and machine applique. • Use of CAD/CAM machines. • Include a range of decorative embellishments. • Stuffing/filling your toy to add a range of textures. • Evaluate the form and function of your product
	Home Learning:	• Independent Investigation into different types of fabric educational toys on the market, skills developed and appropriate fabrics. • Microsoft Teams Knowledge Retrieval Quiz
Y9	**Food**	• Nutrition • Cut down on saturated fat. • Eat less salt. • Cut down on sugar. • Base your meals on starchy foods. • Design ideas • Modifying ingredients for different dietary needs • Producing a time plan for making • Sensory analysis • Evaluation • World foods and culture **Practical Lessons:** • Swiss Roll • Fajitas • Paella • Lattice Fruit Pie • Pizza • Pasta in cheese sauce • Cheesecake • Curry
	Home Learning:	• Teams quiz linked to essential knowledge. organiser books • Organising ingredients and containers for practical lessons • Research ingredients and adaptations for cheesecake
	Graphics	**Architectural Design Project** • Research - site analysis. • Design - perspective drawing. • Modelling with card nets, steel wire, modelling foam, corrugated board, plastic film and MDF and a range of tapes and adhesives. • Use of hot wire cutter, laser cutter, various hand tools. • 2d CAD modelling • 3d CAD modelling
	Home Learning:	• Research into existing designers.
	Resistant Materials	**USB Desk Lamp project** • Analysing and developing a design brief • Design movement research – Art Deco/Bauhaus • Design ideas • Development of final design • CAD modelling – 2D Design • Lamp manufacture

		• Laser cutting • Vinyl cutting • Line bending • Lamp shade design • Testing and evaluating
	Home Learning:	• Existing product analysis • Line bending and laser cutting knowledge
	Textiles	The Great British Sewing Bee - Comfort in the Home • Investigation into context 'comfort in the home' • Develop knowledge and understanding of different fabrics, their properties and suitability to use for different decorative techniques. • Research how different construction and decorative techniques can be used to enhance a garment. • Produce a quick sketch page showcasing a variety of creative design ideas that meet the specification points and are suitable for your target audience. • Seek peer feedback on initial design ideas to support with effective development. • Produce a developed final fashion design sketch of your chosen idea. Develop technical annotations identifying appropriate techniques and fabrics and justifying reason for choice. Making • Re-Cap health and safety and introduce new equipment. • Modify pattern pieces to reflect your design silhouette. • Construct applique, pocket and waistband pattern pieces using functional maths and pin and cut out of fabric. • Learn what pattern symbols on commercial patterns mean, and how to place and cut pattern pieces on fabric correctly. • Use a variety of equipment to create decoration such as: Sublimation printing, CAD/CAM embroidery, Sewing Machine, Hand embroidery equipment, Tie dye and decorative embellishment. • Use a sewing machine to construct the garment-further developing skills on sewing seams and hems from previous years. • Evaluate form and function of garment seeking target market feedback.
	Home Learning:	• Investigate 3 possible themes suitable for your chosen target audience and collect inspirational images. • Source fabrics for your practical • Microsoft Teams Knowledge Retrieval Quiz

Key Stage 4				
Y10	**Construction**	Introduction to the construction industry • Health & safety in construction	• Plumbing practical skills • Plumbing joining methods – plastic/push	• Bricklaying practical skills • Painting and decorating

		• Joinery/carpentry practical skills • Roles and responsibilities Electrical practical skills NEA task 1.	fit/copper compression/soldering. NEA task 2	NEA task 3
	Home Learning:	Health & Safety Trade Tools & equipment Teams quizzes	Roles and responsibilities Tools & equipment Teams' quizzes	Safe manual handling Tool & equipment Teams' quizzes
	Food	Weeks 1-15 Core Knowledge • Food safety • Eat-well guide • Macronutrients (Carbohydrates, proteins & fats) • Micronutrients (Vitamins and Minerals) • Core end of unit test Fruit and Vegetables • Classification • Seasonality and food miles. • Processing and preservation • Methods of cooking (loss of nutrients) • End of unit test Practical lessons • Vegetable Soup • Fruit Upside Down Pudding • Fruit Pie • Stir Fry/Curry Cereals • Staple food • Wheat • Bread • Pasta • sauces • Rice • Other cereals Practical lessons • Pizza • Christmas Cake Decorating Christmas Cake	Weeks 16-25 Cereals continued • Rice, • Maize, oats, barley, rye and other grains. • End of unit test Practical lessons • Risotto/Paella Milk and Dairy • Milk types • Secondary processing: • Cheese • Yoghurt • Cream • End of unit test Practical lessons • Quiche • Cheesecake • Bar Gateaux	Weeks 26-39 Meat, Poultry, Fish, Eggs • Composition • Storage, preparation and cooking • Preservation • End of unit test Practical lessons • Lasagne • Fish Cakes Fats, Oils, Sugars and Syrups • Types • Structure • Properties/uses • Health links Practical lessons • Flaky Pastry • Choux Pastry • Lemon Meringue Pie Beans, Nuts, Seeds, Soya, Tofu and Mycoprotein • Types Storage, cooking, uses

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	Home Learning:	**Once per fortnight: exam preparation questions/revision/Seneca** **Once per fortnight: Organising ingredients and containers for practical lessons**	**Once per fortnight: exam preparation questions/revision/Seneca** **Once per fortnight: Organising ingredients and containers for practical lessons**	**Once per fortnight: exam preparation questions/revision/Seneca** **Once per fortnight: Organising ingredients and containers for practical lessons**
	Graphics	**<u>Greenhouse Project</u>** **Interior design project- repurposing the greenhouse outside the school building.** • **Working to scale** • **2d design** • **Laser cutting** • **Working with various papers/ boards and modelling materials using cutting/ shaping/ forming methods.** • **3d CAD modelling**	**<u>Pewter Cast Keyring</u>** **Design and make a pewter cast keyring using a laser cut MDF mould.** • **2d design and advanced CAD design.** • **Laser cutting** • **Casting pewter** **Finishing metal**	**<u>Night Light</u>** **Design and make a USB powered night light.** • **Development of 3d products using 2d CAD methods.** • **Light design.** • **Electronics/ circuit design**
	Home Learning:	**Once a fortnight students will undertake theory or project-based home learning.**	**Once a fortnight students will undertake theory or project-based home learning.**	**Once a fortnight students will undertake theory or project-based home learning.**
	Textiles	**Weeks 1-15** **CORE THEORY** • **New and emerging technologies** • **Energy** • **Timbers** • **Metals** • **Papers and Boards** • **Electronic systems and components** • **Polymers** • **Smart and Technical Materials** • **Mechanical Devices** • **Designers and companies** • **Challenges that influence deign**	**Weeks 16-25** **TEXTILES THEORY** • **Fibres** • **Yarns** • **Fabric Construction** • **Fabric properties** • **Environmental, cultural, ethical and social factors** • **Decorative and construction techniques** • **Components** • **Surface Treatments and finishes** • **Smart and Technical Textiles**	**Weeks 26-39** **TEXTILES SKILLS BUILDER** • **Development of construction skills to produce a fashion item/accessory. Further explore and develop decoration techniques.** **TEXTILES THEORY** • **Forces and Stresses** • **Stock forms** • **Fashion and Textiles Manufacturing including specialist techniques**

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		• Design communication and strategies TEXTILES SKILLS BUILDER • Christmas stocking focussing on producing a variety of high quality decoration techniques	• How to break down and answer examination questions	WEEK 36-BEGIN NEA • Investigation into exam board contextual challenges • Independent investigation pages on chosen context • Development of Design Brief and Specification
	Home Learning:	Once per fortnight: exam preparation questions/revision	Once per fortnight: exam preparation questions/revision	Once per fortnight: exam preparation questions/revision Once per week: NEA write up
Y11	Construction	Stud walling/dry lining and plastering. Painting and decorating Practical skills NEA tasks write up – 10 hours. Final NEA submission (60%) Exam Theory 1.1 The construction sector. 1.2 The built environment Types of building and structure	Tiling practical skills Exam Theory 1.3 Technologies and materials 1.4 Building structures and forms Sustainable construction methods	Exam practise 1.5 Trades, employment and careers 1.6 Health & Safety Revision activities Exam practise papers Final exam (40%)
	Home Learning:	End of unit tests – Once a fortnight	End of unit tests – Once a fortnight	End of unit tests – Once a fortnight Practise exam papers
	Food	Weeks 1-15 NEA1 task: research, practical investigation, conclusion. NEA 2 task: research, practical trial dishes.	Weeks 16-25 NEA 2 task: Selecting exam dishes, reasons for choice, time plan. Practical food exam Sensory analysis Evaluation	Weeks 26-39 Revision of commodities and core knowledge. Exam preparation: revision and exam technique. Some practical lessons linked to revision.
	Home Learning:	Once per fortnight: exam preparation questions/revision/Seneca Once per fortnight:	Once per fortnight: exam preparation questions/revision/Seneca Once per fortnight:	Once per fortnight: exam preparation questions/revision/Seneca Once per fortnight:

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		Organising ingredients and containers for practical lessons	Organising ingredients and containers for practical lessons	Organising ingredients and containers for practical lessons
	Graphics	NEA tasks - Designing Design ideas Design review Development of chosen design ideas	NEA tasks- Making Traditional and 3D CAD Modelling Final design Review of final design	Materials justification Product Manufacture Testing and evaluation
	Home Learning:	NEA write up.	NEA write up.	End of unit tests – Once a fortnight
	Textiles	Weeks 1-15 NEA • Initial Designs • Prototyping • Developed Designs • Focus Group Client feedback and analysis Final Design	Weeks 16-25 NEA • Produce a toile • Manufacture final prototype	Weeks 26-39 NEA • Evaluation THEORY Revisit topics from CORE and Textiles theory in preparation for the examination
	Home Learning:	Once per fortnight: exam preparation questions/revision Once per week: NEA write up	Once per fortnight: exam preparation questions/revision Once per week: NEA write up	Once per Week: exam preparation questions/revision

Key Stage 5

Y 12	Fashion & Textiles	Weeks 1-15 THEORY • Fibres • Yarns • Fibre Blends • Weaves • Knitted • Non-Woven • Pattern Drafting • Fabric Finishes • Smart Materials • History of Design • Key Influential Designers	Weeks 16-25 THEORY • Surface Decoration • Printing and Dying • Fabric Testing • After Care • Components • Trims and Embellishments • Responsible Design • How to break down and answer questions • Exam technique	Weeks 26-39 Begin NEA • Design problem and context • Investigate chosen context. • Initial prototyping of ideas • Design Brief and Specification
	Home Learning:	Once per week: exam preparation questions/revision	Once per week: exam preparation questions/revision	Once per Week: NEA Write Up Sumer HL: Complete 6 initial design ideas

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	Product Design	Knowledge and understanding 1. Materials 2. Material Properties NEA skills development task 1 *Re-engineered desk lamp* • Research and investigation • Design ideas • Modelling and development • 3D CAD – Onshape • Casting/Bending /brazing/finishing metal • Laser cutting Testing and evaluation	Knowledge and understanding 3. Processes, Techniques and Specialist Tools 4. CAD/ CAM (digital technologies) NEA skills development task 2 *Wireless blue tooth speaker* • Designing around a theme • Client based design. • Design ideas • 3D traditional modelling • 3D printing • Bending and shaping of materials. • Finishing materials – spraying etc Testing and suggesting improvements	Knowledge and understanding 5. Factors that influence design 6. Effects of Technological Developments NEA skills development task 3 CNC and manual machining • Plumb bob • Sliding bevel Use of lathe, milling machining Working to tolerance Quality control Commercial Design & make NEA task (50%) • Investigating design possibilities • Client needs and wants. • Research Design Specification
	Home Learning:	Exam style questions/end of unit tests once a fortnight Once a week – NEA write up	Exam style questions/end of unit tests once a fortnight Once a week – NEA write up	Exam style questions/end of unit tests once a fortnight Practise papers
Y13	Fashion & Textiles	Weeks 1-15 NEA • Initial Design annotation • Client/Focus group feedback • Developed designs and prototyping. • Final Design • Pattern Drafting Toile production	Weeks 16-25 • Manufacture of final prototype • Evaluation THEORY Revisit theory topics covered in Y12 in preparation for the examination	Weeks 26-39 THEORY • Revisit theory topics covered in Y12 in preparation for the examination. Exam Question practice and feedback
	Home Learning:	Once per Week: NEA Write Up	Once per Week: NEA Write Up	Once per Week: Examination Questions and revision

	Product Design	**Knowledge and understanding** 1. Safe working practice 2. Features of Manufacturing Industries **Commercial Design & make NEA task (50%)** • Design ideas • Design ideas review • Design development – modelling and test **Final design solution**	**Knowledge and understanding** 3. Design for maintenance and the cleaner environment 4. Current Legislation **Commercial Design & make NEA task (50%)** • Review of development and final design • Product manufacture **Evaluation and testing**	**Knowledge and understanding** 1. Information handling 2. Further processes and techniques
	Home Learning:	**Exam style questions/end of unit tests once a fortnight** **Once a week – NEA write up**	**Exam style questions/end of unit tests once a fortnight** **Once a week – NEA write up**	**Exam style questions/end of unit tests once a fortnight** **Practise papers**