John Taylor High School Home of the National Forest Teaching School		Subject Curriculum Map:	Design Technology	Year Group:	7
Term	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Topic	**THINK LIKE A... DT EXPERT**	**THINK LIKE A... DT EXPERT**	**CAREERS**	**CAREERS**	**STEM TO HELP THE WORLD**	**THINK LIKE A... NUTRIONIST**
Big Question	**What do I need to know to be successful designer?**	**How do I draw like a designer?**	**How do I think like a...**	**How do I think like a...**	**How can I help my world through design?**	**How can I look after myself?**
Content	• Intro to creative careers • Metacognition • Measurement • Angles • Material management – tessellation and nesting • Colour theory • Rendering • 1 point perspective • 2 point perspective	• Isometric drawing • Orthographic drawing • Inclusive Design	**SUSTAINABLE DESIGNER:** • the 6 Rs, carbon footprint, life cycles, disposal strategies • renewable/non renewable energies: Practical: plastic wallet. **GRAPHIC DESIGNER:** • Typography • Logo Design Practical: design a logo **FASHION DESIGNER:** • Cultural/religious dress • Origins/types of textiles • Technical textiles Practical: weaving	**PRODUCT DESIGNER:** • Design strategies, biomimicry, zoomorphism, iterative design, design movements Practical: redesign a product **CIVIL ENGINEER:** • Types of strengths, material properties, strengthening materials. • Craft materials/tools Practical: design a structure **MECHANICAL ENGINEER:** • Types of motion • Linkages • Mechanical advantage Practical: make a moving litter picker	Pupils will undertake several STEM based projects focused on developing countries and how they can design products to solve problems. • Ditch the Dirt project • Regreen the desert • Stop the Spread • Moja Island	• DIETARY VARIETY. • Eatwell guide • Intolerances • age food needs • adapting for dietary needs etc. • LACTOSE, milk tasting, oat, cow, soy, condensed. • Evaluation techniques: Star profile. • PROTEIN • Vegetarian protein. • SUCROSE/FRUCTOSE: Drinks and sugar content weighing and impact on body.
Assessment	**DESIGN** **2 point perspective drawing assessment**	**TECHNICAL KNOWLEDGE**: Written assessment	**DESIGN** Textiles Design	**TECHNICAL KNOWLEDGE**: Written assessment	**TECHNICAL KNOWLEDGE**: Written assessment	**TECHNICAL KNOWLEDGE**: Written assessment

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<table>
<tr><th></th><th>ROTATION 1</th><th>ROTATION 2</th><th>ROTATION 3</th></tr>
<tr><td>Topic</td><td>THINK LIKE A.. CAD/CAM DESIGNER</td><td>THINK LIKE AN.. ECO DESIGNER</td><td>FOOD – HEALTHY EATING</td></tr>
<tr><td>Big Question</td><td>How does machinery aid designers?</td><td>How can I help my world?</td><td>How do I make healthy, sustainable food?</td></tr>
<tr><td>Content</td><td>• Introduction to CAD/CAM - what do they mean, what careers use them, what are their advantages and disadvantages.
• Designing to a brief - coming up with imagery associated with word prompts to aid in designing their product.
• 2D Design skills – how to use basic tools in 2D Design, how to set up 2D Design document, producing a product in 2D Design to be laser cut
• Orthographic projection – digitally and by hand
• Laser cutting - setting up files correctly to be laser cut, why we use laser cutters/benefits
• Wood finishes/adhesives to complete the assembly of the project.

• Systems and processes - input, output and processes to design a buzzer circuit
• Finger joint – laser cut wooden box
• Smart materials – using polymorph to design an anthropometric/ergonomic handle for their steady hand game.
• Isometric drawing - of final product</td><td>• Environment theory: habitat loss, deforestation, overpopulation, agriculture.
• Where do timbers come from?
• Conversion processes, baulk, through and through, tangential, quarter cut.
• Stock forms – square section
• Joining woods, standard components, adhesives, wood joints.
• Finger joint, halving joint, butt joint, dowel joint.
• Composite theory – concrete casting
• Timber bending and lamination
• Use of a template
• Working to tolerances
• Table top router – teacher supervision if pupil is signed off as safe to use.</td><td>• Introduction to the Food room – hygiene, health and safety
• The Eatwell Guide and current dietary guidelines
• Understand energy balance, heat transfer and practical making techniques including simple scientific explanation (e.g. reduction sauces)
• Develop key skills and techniques in the basic preparation of food
• Enthuse students, encouraging all to enjoy the act of preparing, cooking, tasting food and sharing food
• Identify and apply practical cooking skills to a range of food products using the hob, oven and grill
• Knowledge and understanding of tools, equipment and processes, their safe use and skill application
• Follow a simple plan to prepare, cook and present a finished food product
• Develop understanding and awareness of staple ingredients (e.g. meats, fruits, cereals etc) and consider their applications for future use
• Develop student's confidence such that they feel able to demonstrate their creative flare and precision in making</td></tr>
<tr><td>Assessment</td><td>• DESIGN: Final outcome for layered scene
• Technical Knowledge: written assessment week 12</td><td>• MAKE: Plant pot outcome week 6/7
• Technical knowledge: written assessment week 9/10</td><td>• Technical knowledge: Eat Well Guide & Healthy Choices – written assessment week 5/6
• MAKE: Dough Practical – Chelsea Buns assessment week 9/10</td></tr>
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Subject Curriculum Map: Design Technology

Year Group: 9

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	THINK LIKE AN ARCHITECT		THINK LIKE A PRODUCT DESIGNER		THINK LIKE A CHEF	
Big Question	How do I communicate my design ideas?		How do I work with resistant materials?		How do different ingredients work together in different cuisines?	
Content	• Research skills • Mood board making – aesthetic focus • Architects: Zaha Hadid and Marcel Breuer • Isometric build on (from Y7 and Y8) • Rendering • Idea generation techniques: papers and shapes • CAD: 2D Design and SketchUp • CAM: Laser cutting • Model making and assembly • Model making finishing techniques • Evaluation skills • Craft skills/equipment • Orthographic projection drawing – high level • 2 point perspective – high level		**Theory:** • Brief and specifications • ACCESS FM • Product Analysis • Thermoplastics and thermosetting plastics • Metals: ferrous, non ferrous, alloys • Manufactured boards: plywood and MDF manufacturing • Material properties: malleable, brittle • Designer theory: Marcel Breuer, Rashid Kamil, Aljoud Lootah • Manufacturing processes: addition, wastage and forming **Practical:** • Use of former • Working with flexiply • Thermoforming plastics • CAD/CAM (2D Design and Laser cutter) • Coping saw, tenon saw, scroll saw • Oven • Files • Sanding and finishing • Adhesives		• Develop and engage with hygiene, health, and safety in the practical food room (Building from Y8) • Build on awareness and understanding of Eat Well Guide and nutrition – macro and micronutrients & their role in the body • Recognise and identify traditional cuisine across the world; including British, Italian etc. • Develop key skills and techniques in the preparation of more complex food products (Building from Y8) • Raise awareness of international cuisine and its influence on the foods we consume here in Great Britain today • Identify and apply practical cooking skills to a range of food products using the hob, oven and microwave (Building from Y8) • Knowledge and understanding of a wider range of tools, equipment and processes, including specialist tools etc. used in world cuisine (Building from Y8) • Follow a more detailed plan to prepare, cook and present a finished food product (Building from Y8) • Develop understanding of the functional properties of a range of ingredients and consider their applications for future use – raising agents, fats and carbohydrates. • Build confidence and competence in the use of tools/equipment and ingredients, allowing students to modify and adjust recipes to suit different groups of consumers (Building from Y8)	
Assessment	• **TECHNICAL KNOWLEDGE** week 6/7 • **MAKE** week 9/10		**Make – 6/7** **Technical knowledge week 11**		• **Technical knowledge:** Macronutrients – written assessment, week 5/6 • **MAKE:** LASAGNE – pasta make, ragu and white sauce, week 10	

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Term	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Topic	Specialist Technical Principles: Timbers	Specialist Technical Principles: Timbers	Core Technical Principles: Developments in new materials. Energy, Systems & Processes	Making Principles	Core Technical Principles: Materials & their properties	NEA
Big Question	What are Timbers?	How do we commercially process Timbers? How do we enhance & finish timbers?	How has science and technology enabled developments of new materials, processes & technologies?	How do we ensure accuracy and quality when manufacturing?	Why do we use different materials for different applications?	NEA: contextual challenge
Content	• Source & Origins • Timber based materials: Seasoning, conversion and creation of manufactured timbers. • Timber categories (Y9 wordart) • Selection of materials and components • Stock forms, types & sizes • The application and use of Quality Control to include measurable and quantitative systems used during manufacture (Soma Cube FPT)	• Timber enhancements (Basic in Y9 Wordart) • Commercial processes • How materials are cut shaped and formed to a tolerance (Soma Cube FPT/ Y9 Wordart) • Tools & equipment • Surface treatments & finishes • The application and use of Quality Control to include measurable and quantitative systems used during manufacture (Soma Cube FPT)	• Smart Materials • Modern Materials • Composites • Technical textiles • Energy storage systems (Y9 Physics: Autumn term) • Fossil fuels (Y8 Physics briefly. Y9 Autum term) • Nuclear power (Y8 Physics briefly. Y9 Autum term) • Renewable energy (Y8 Physics briefly. Y9 Autum term) • Systems approaches: Input, processes, outputs (Y8 Physics: basics/ Y11 Autumn) • Mechanical systems: Movements, linkages. Rotary systems outputs (Y7 Stripe Movement/ Tripe aqard Science in Y10 sring)	• Selection of materials Tolerances • Material management • Tools & equipment • Surface treatments	• Timbers • Polymers • Paper & boards • Metals • Textiles	• Identifying & investigating design possibilities • Exploration of theme • Research appropriate to theme • Producing a design brief & specification
Assessment	• Recall/ Retrieval quiz • Interim test • FPT practical • Homework	• Recall/ Retrieval quiz • Homework • End of Unit assessment	• Recall/ Retrieval quiz • Interim test • Homework • End of Unit assessment	• Recall/ Retrieval quiz • Homework • End of Unit assessment	• Recall/ Retrieval quiz • Interim test • Homework • End of Unit assessment	• External assessment • AO1: Identify, investigate and outline design possibilities to address needs and wants. • AO3: Analyse and evaluate

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Subject Curriculum Map:	Design Technology	Year Group:	11

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	NEA	NEA	NEA	Review & Revision		
Big Question	NEA: contextual challenge	NEA: contextual challenge	NEA: contextual challenge	What revision strategies work best for me? What revision strategies work best for DT		
Content	NEA • Generating design ideas Developing design ideas	NEA • Developing design ideas • Realising design ideas	NEA • Analysing & evaluating	• Review of all 'End of Unit Assessment Review' documents to prioritise revision • Recall & Retrieval • Low stake quizzes • Seneca/ GSCE Pod • Revision maps • Revision cards • Exam practice • Use of mark schemes		
Assessment	NEA • External assessment • AO2: Design and make prototypes that are fit for purpose. • AO3: Analyse and evaluate Designing principles • Recall/ Retrieval quiz • Homework • End of Unit assessment	NEA • External assessment • AO2: Design and make prototypes that are fit for purpose. New & Emerging Technologies • Recall/ Retrieval quiz • Homework • End of Unit assessment	NEA • External assessment • AO3: Analyse and evaluate:	• External Exam		

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Subject Curriculum Map:	Design Technology	Year Group:	12

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Design methods & processes Design influences Materials & Applications	Design for manufacture Standards for Design Materials & Applications	Contextual challenge Technological developments Materials & Applications	Contextual challenge Responsible design Materials & Applications	Contextual challenge Accuracy in manufacture Patents	Contextual challenge Recall and Retrival
Content	• Design communication • Drawing techniques • Enterprise & Marketing • Scales of Production	• Digital design • CAD CAM • Requirements of product design • Feasibility studies • Safe working practices	• Practice NEA • Contextual challenge • AO1 Identify, investigate & outline design possibilities	• Practice NEA • Contextual challenge • A02 Design & make prototypes that are fit for purpose	• Practice NEA • Contextual challenge • A02 Design & make prototypes that are fit for purpose	• Practice NEA • Contextual challenge • A03 Analyse & evaluate
	• Design theory • Design movements • Iconic Designers	• National & International standards	• Technological developments • Socio economic influences • Poverty, health & wellbeing • Inclusive design • Cultural influences • Product lifecycles	• Responsible design • 6R's • Sustainability • Product disassembly • Ease of manufacturer	• Accuracy in design & manufacture • Selecting tools & equipment	Revision strategies for Y12 Exams • Recall & Retrieval • Low stake quizzes • Padlet • Look back: Seneca/ GSCE Pod • Revision maps • Revision cards • Exam practice • Use of mark schemes
	• Metal properties • Metal processes • Metal enhancements • Metal finishes	• Polymer properties • Polymer processes • Polymer enhancements • Polymer finishes • Biodegradable polymers • Elastomers	• Timber properties • Timber processes • Timber enhancements • Timber finishes	• Paper & Board properties • Paper & Board processes • Paper & Board enhancements • Paper & Board finishes • Smart & Modern materials • Composites	• H&S • Patents & Intellectual property	
Assessment	• Recall/ Retrieval quiz • Exam question practice • End of Unit assessment	• Recall/ Retrieval quiz • Exam question practice • End of Unit assessment	• Recall/ Retrieval quiz • Exam question practice • End of Unit assessment • A01	• Recall/ Retrieval quiz • Exam question practice • End of Unit assessment • A02	• Recall/ Retrieval quiz • Exam question practice • End of Unit assessment • A02	• Recall/ Retrieval quiz • Exam question practice • Y12 Exams • A03

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Term	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Topic	NEA Commercial manufacture	NEA Modern manufacturing	NEA Revision and Recall	NEA Revision and Recall		
Content	• NEA • AO1 Identify, investigate & outline design possibilities • A03 Analyse & evaluate	• NEA • A02 Design & make prototypes that are fit for purpose	• NEA • A02 Design & make prototypes that are fit for purpose • A03 Analyse & evaluate	• NEA • A03 Analyse & evaluate	• Revision strategies • Revision	
	• Design for manufacture and project management • Modern industrial and commercial practice • Maths practice	• Digital design and manufacture • The requirements for product design and development • Modern manufacturing systems • Maths practice	• Review of all 'End of Unit Assessment Review' documents to prioritise revision • Revision strategies • Revision • Maths practice	• Revision strategies • Revision • Maths practice		
Assessment	NEA • External assessment • AO1 • Recall/ Retrieval quiz • Homework • End of Unit assessment	NEA • External assessment • AO2 • Recall/ Retrieval quiz • Homework • End of Unit assessment	NEA • External assessment • AO3	External NEA moderation. 50% of A Level • A01: Identify, investigate & outline design possibilities • A02: Design & make prototypes that are fit for purpose • A03: Analyse & evaluate	External exam • Paper 1. 30% of A Level • Paper 2. 20% of A Level	