



## DESIGN & TECHNOLOGY PATHWAY

Taunton Preparatory School  
Taunton School International  
Taunton School Senior  
Revised: January 2020





## Taunton Prep School

### Key Stage 1

Pupils are taught by their teacher with TA support in class. Years 1 & 2 undertake design, make and modelling projects and basic cookery tasks related to topic based studies using a variety of materials and recycled products.

The main skills the children experience are-

- Measuring, marking, cutting, joining materials
- Material manipulation
- Basic construction
- Use of re-cycled products
- Construction kits
- Sewing
- Combining ingredients
- Cooking
- Planning
- Labelling designs
- Basic CAD
- Developing DT language
- Health & safety

### Key Stage 2

Pupils are taught by class teacher at Y3 and almost exclusively by a subject specialist at Y4, 5 and 6 and have one double lesson per week. The aim is to foster a lifelong interest of and to focus firmly on the skills needed for progression in the subject further up the school. Throughout KS2 there is a focus on developing measuring, marking and cutting skills further. The students use a wider range of materials to create design and make solutions to simple briefs. Problems are undertaken 'something, for someone, for some purpose'. Themes are explored involving mechanisms, electronics, textiles, structures and modelling ideas and evaluating them.

<p><b>Year 3 Topics - Creative Curriculum</b></p> <ul style="list-style-type: none"> <li>• Celtic weaving- Textiles</li> <li>• Roman chariot- Wheels &amp; axles</li> <li>• Volcano model-electronic control</li> <li>• Picnic packaging-2D to 3D- structures</li> </ul>	<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Weaving</li> <li>• Basic construction skills</li> <li>• Measuring, marking, cutting, joining</li> <li>• Modelling in mixed media</li> <li>• Folding</li> <li>• Paper/card construction</li> </ul>
<p><b>Year 4 Topics - Creative Curriculum</b></p> <ul style="list-style-type: none"> <li>• Privateers and Petticoats-levers &amp; mechanisms</li> <li>• Ice Explorer board game- Graphical modelling</li> <li>• Tropical rain forest bugs- electronic control.</li> </ul>	<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Basic mechanisms</li> <li>• Health &amp; safety in the workshop</li> <li>• Levers</li> <li>• Labelling designs</li> <li>• Measuring, marking, cutting</li> <li>• Planning</li> <li>• Basic electronics</li> <li>• Joining components</li> </ul>
<p><b>Year 5 Topics –</b></p> <ul style="list-style-type: none"> <li>• Safety in the workshop-signs</li> <li>• Message muncher- D&amp;M task</li> <li>• Emoji cushion- Textiles</li> <li>• Tower challenge- structures</li> </ul>	<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Health &amp; safety in the workshop</li> <li>• Planning</li> <li>• Rendering</li> <li>• Measuring, marking, cutting</li> <li>• Fretsaw</li> <li>• Drilling</li> <li>• Sanding</li> </ul>



	<ul style="list-style-type: none"> <li>• Sewing &amp; sewing machine</li> <li>• Construction</li> </ul>
<p><b>Year 6 Topics</b></p> <ul style="list-style-type: none"> <li>• Isometric house-Graphics</li> <li>• Electronic face-Electronics</li> <li>• Bread based products-Food technology</li> <li>• Acrylic keyring-Materials</li> <li>• Vinyl logo-CAD 2D design &amp; vinyl cutting</li> </ul>	<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Basic and further skills of isometrics drawing.</li> <li>• 3D geometric shapes</li> <li>• Rendering</li> <li>• What are electronics?</li> <li>• Use of various components, LEDs, buzzers,</li> <li>• Soldering</li> <li>• Various baking skills, combining ingredients, making dough, proving</li> <li>• Manufacturing skills- sanding, polishing, drilling</li> <li>• 2D design- use of different tools &amp; processes</li> <li>• Use of vinyl cutter</li> <li>• Developing DT language</li> </ul>

### Key Stage 3

Pupils continue to have one double lesson per week, taught by subject specialist they develop skills further in the same areas as KS2. Briefs are undertaken something, for someone, for some purpose. Projects become more detailed and follow the design process, closely. Preps are set to supplement the classwork and include research and design work.

<p><b>Year 7 Topics</b></p> <ul style="list-style-type: none"> <li>• Perspective drawing &amp; The work of Frank Lloyd-Wright- Graphics</li> <li>• Pop Art clock- D&amp;M task</li> <li>• Manufactured boards-(theory)</li> <li>• Bubble packaging- CAD &amp; graphics</li> </ul>	<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Basic and further graphic, perspective skills</li> <li>• Basic architecture</li> <li>• Research</li> <li>• Working to the design process</li> <li>• Working with machinery</li> <li>• Material selection</li> <li>• Working with hand tools, various skills</li> <li>• Vacuum forming</li> <li>• Manufactured boards</li> <li>• Developing DT language</li> </ul>
<p><b>Year 8 Topics</b></p> <ul style="list-style-type: none"> <li>• Food technology-</li> <li>• Polymers (plastics theory)-</li> <li>• Acrylic peg- FPT</li> <li>• Desk storage unit- D&amp;M task-</li> <li>• Autodesk fusion- basic CAD skills</li> </ul>	<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Health &amp; safety in the kitchen, food hygiene</li> <li>• Baking, frying, vegetable&amp; fruit preparation, combining ingredients</li> <li>• Research</li> <li>• Manipulate materials (Polymers)</li> <li>• Measuring marking out polymers</li> <li>• Use of heating processes, strip heater, oven, vacuum former</li> <li>• Look at Memphis design group</li> <li>• Isometric drawing</li> <li>• Joining polymers</li> <li>• Processing polymers</li> <li>• Basic skills using Autodesk fusion</li> <li>• Developing DT language</li> </ul>



## Taunton Senior School

### Key Stage 3

Pupils in Year 9 have three lessons a week to work on developing key skills in Design and Technology. The focus will be on areas that were not covered in KS1, 2, and Y7 & 8. Year 9 students will also be exposed to new and emerging areas in the Design & Technology curriculum. The double periods in the main will be dedicated to practical activities and workshop based. The single will focus on core knowledge, and design development. This may, but not exclusively include CAD, and programming.

<b>Year 9 topics</b>	<b>Skills</b>
<ul style="list-style-type: none"> <li>Metals theory.</li> <li>Metal manufacturing methods</li> <li>Metal Joining methods</li> <li>Autodesk Fusion 360</li> <li>2D Design</li> <li>Levers</li> <li>Mechanisms</li> <li>Forces</li> <li>Movements</li> <li>Gears</li> <li>VEX Robotics</li> <li>Electronics</li> </ul>	<ul style="list-style-type: none"> <li>Recall, select, organise and deploy knowledge of the syllabus content</li> <li>Critically Analyse products</li> <li>Recall mechanical movements</li> <li>Identify basic hand tools</li> <li>Manipulate materials (metal)</li> <li>Measuring, and marking out</li> <li>Apply basic practical techniques e.g. Joining, Changing Shape, Wastage, Finishing</li> <li>Develop CAD drawing skills</li> <li>Improve academic D&amp;T language</li> <li>How to work safely in a DT workshop environment.</li> <li>Joining metals through heat.</li> <li>Electronic component identification.</li> </ul>

### Key Stage 4

Design & Technology is an optional subject at KS4. We follow the OCR Product Design format and focus on two specialist materials; Timber, and Plastics. All students are taught core knowledge. Knowledge is taught through a variety of practical activities. Students have 4 lessons per work normally split between theory and practical. The NEA context which is worth 50% of the final grade begins 1<sup>st</sup> June.

<b>Years 10 and 11 Topics</b>	<b>Skills</b>
<ul style="list-style-type: none"> <li>Softwoods</li> <li>Hardwoods</li> <li>Manufactured boards</li> <li>Composites</li> <li>Smart materials</li> <li>New and emerging technologies</li> <li>Polymers</li> <li>Production processes</li> <li>Origins of materials</li> <li>Life Cycle Analysis</li> <li>End of life</li> <li>CAD</li> <li>Modelling</li> <li>NEA</li> </ul>	<p>The assessment objectives are as follows:</p> <ul style="list-style-type: none"> <li>AO1 – Identify, Investigate and outline design possibilities to address needs and wants</li> <li>AO2 – Design and make prototypes that are fit for purpose</li> <li>AO3 - Analyse and evaluate: Design decisions and outcomes, including for prototypes made by themselves and others.</li> <li>Wider issues in Design and Technology</li> <li>AO4 - Demonstrate and apply knowledge and understanding of: Technical principles. Designing and making principles.</li> </ul>

### Key Stage 5

In the 6<sup>th</sup> form there is a choice between A Level and IB. Within A Level, we use the OCR board focusing on Product Design. The IB is set in Group 4; experimental sciences. Like GCSE, the course at A Level follows a practical approach. IB is slightly different since more emphasis is placed on the exam component. Coursework at A Level is worth 50%, and 40% at IB.

<b>A Level Topics</b>	<b>Skills;</b>
<p><b>Materials:</b> Polymers/Timber/Boards/Metals/Smart</p>	Skills are developed and enhanced round the assessment objectives below.



<ul style="list-style-type: none"> <li>• Manufacturing process</li> <li>• Source</li> <li>• Disposal</li> <li>• Uses</li> <li>• Impact</li> <li>• Types</li> <li>• Properties (Mechanical/Physical)</li> <li>• Life Cycle Analysis</li> <li>• Life Cycle Assessment</li> </ul> <p><b>Design matters:</b></p> <ul style="list-style-type: none"> <li>• New and emerging technologies</li> <li>• Distribution</li> <li>• Design communication techniques</li> <li>• Manufacturing impact</li> <li>• Circular Economy</li> <li>• Design Mathematics</li> <li>• Design Impacts</li> <li>• Design Influence/history</li> <li>• CAD (Advanced)</li> </ul>	<p>Assessment objectives include:</p> <ul style="list-style-type: none"> <li>• AO1 – Identify, Investigate and outline design possibilities to address needs and wants</li> <li>• AO2 – Design and make prototypes that are fit for purpose</li> <li>• AO3 – Analyse and evaluate: Design decisions and outcomes, including for prototypes made by themselves and others</li> <li>• AO4 – Demonstrate and apply knowledge and understanding of: Technical principles, designing and making principles.</li> </ul>
<p><b>IB</b></p> <p><b>All students follow the core topics below;</b></p> <ol style="list-style-type: none"> <li>1. Human Factors</li> <li>2. Resource Management</li> <li>3. Modelling</li> <li>4. Raw material to final product</li> <li>5. Innovation and invention</li> <li>6. Classic Design</li> </ol> <p><b>Higher level candidates will study in addition to the topics above, the following.</b></p> <ol style="list-style-type: none"> <li>1. User Centred Design</li> <li>2. Sustainability</li> <li>3. Innovation and markets</li> <li>4. Commercial Production</li> </ol>	<p><b>Skills</b></p> <p><b>It is the intention of the design technology course that students are able to fulfil the following assessment objectives.</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate knowledge and understanding of:             <ol style="list-style-type: none"> <li>1. Facts, concepts, principles and terminology</li> <li>2. Design methodology and technology</li> <li>3. Methods of communicating and presenting technological information.</li> </ol> </li> <li>2. Apply and use:             <ol style="list-style-type: none"> <li>1. Facts, concepts, principles and terminology</li> <li>2. Design methodology and technology</li> <li>3. Methods of communicating and presenting technological information.</li> </ol> </li> <li>3. Construct, analyse and evaluate:             <ol style="list-style-type: none"> <li>1. Design briefs, problems, specifications and plans</li> <li>2. Methods, techniques and products</li> <li>3. Data, information and technological explanations.</li> </ol> </li> <li>4. Demonstrate the appropriate research, experimentation, modelling and personal skills necessary to carry out innovative, insightful, ethical and effective designing.</li> </ol>

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