
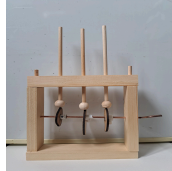






**Key Stage 3 Curriculum Journey:**

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. D&T aims to develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users critique, evaluate and test their ideas and products and the work of others.

**D&T KS3 CURRICULUM JOURNEY**

|   | <b>YEAR 7 six month rotation approx 18 lessons</b>  | <b>YEAR 8 six month rotation approx 18 lessons</b>   | <b>YEAR 9 six month rotation split into 2 x 10 weeks - block 1</b>  | <b>YEAR 9 six month rotation split into 2 x 10 weeks - Block 2</b>   |
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| <b>Topic and learning focus</b>                     |  <p>This project introduces metals. Pupils design and make a metal bug using hand tools and pillar drill. Pupils are introduced to the design cycle and research Arts &amp; Crafts movement before producing oblique views of their designs.</p>                             |  <p>This project is a problem solving unit. introduces mechanisms and the use of cams and an oscillating follower. Pupils plan a full scale and model their ideas before making a MDF model</p>   |  <p>This unit focuses on developing pupils' understanding of textiles and to develop their skills in CAD and manipulating textiles to produce a felt frame of a mirror or photograph.</p>  |  <p>This project introduces decorative surface pattern textiles and microelectronics using a switch and LED. It also builds upon their practical workshop skills learnt in the previous block</p>   |
|   | <b>Metal Bugs and laser cut light</b>   | <b>Curious Contraptions</b>  | <b>Felt Frame</b>   | <b>Enhanced Embellishments</b>   |
| <b>Foundational Knowledge Prior learning needed</b> | <ul style="list-style-type: none"> <li>• Introduction to the theory of metals, stock forms and properties</li> <li>• Use technical drawing to communicate in 3D</li> <li>• using a pencil, and ruler for measuring, right angles and straight lines</li> </ul>  | <ul style="list-style-type: none"> <li>• Understanding of the iterative design process, the need to reflect, evaluate and change where necessary.</li> <li>• Basic use of hand tools, pillar drill, belt facer and vices.</li> <li>• Ability to plan workshop time.</li> </ul>   | <ul style="list-style-type: none"> <li>• Basic pencil and ruler skills to measure and draw accurately.</li> <li>• Understand scale, proportion and ratios.</li> <li>• Use technical drawing to communicate in 3D isometric</li> <li>• Knowledge of primary and secondary colours (from art)</li> <li>• Able to access and draw simple shapes in TechSoft 2D Design</li> </ul> | <ul style="list-style-type: none"> <li>• Understanding of 2D lay plan design and communication.</li> <li>• Ability to annotate sketches including sentence structures and justification.</li> <li>• Able to use tools to cut and shape materials.</li> </ul>   |
| <b>Core Knowledge and skills</b>                    | <ul style="list-style-type: none"> <li>• <b>Core:</b> for many students this is the first time they will have handled any tools. students will work in mild steel as it is a harder material and more forgiving or small errors. students will cut straight lines with a rigid saw and file straight lines with flat files or half round as needed</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Core:</b> most students will come across mechanical advantage for the first time and need to understand its applications.</li> <li>• This project also incorporates Graphic Design elements as point of sale and discusses adverts and how to 'tell a story' in design.</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Core:</b> most students will come across textiles as a material before but will be unfamiliar with working with it.</li> <li>• Mostl students should be familiar with 2D Design from previous years and able to use a design to effectively communicate their ideas. Students will</li> </ul>                                     | <ul style="list-style-type: none"> <li>• <b>Core:</b> Understanding of the iterative design process, the need to reflect, evaluate and change where necessary.</li> <li>• To understand that design is all about communication and expression of ideas</li> <li>• To be able to produce a body of work ready for exhibition</li> </ul> |



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|   | <ul style="list-style-type: none"> <li>Produce isometric drawings to accurately communicate intention</li> <li></li> </ul>   |  | <p>now be able to select and utilise appropriate images in 2D design</p>   |  |
| <b>Developmental Knowledge and Skills</b> | <ul style="list-style-type: none"> <li><b>Development:</b> some students will be able to add <u>external</u> curves, either cut with a hacksaw or using the nibbler and filed appropriately</li> </ul>   | <ul style="list-style-type: none"> <li><b>Development:</b> students should now be developing their skills in the workshop and are now working with a softer material (pine) which requires more care than the steel of the metal bugs. they will be assessed on the function of the product and its consideration of user need and environmental impact</li> </ul>   | <ul style="list-style-type: none"> <li><b>Development:</b> students should now be developing their skills to produce an effective design based on a concept board and utilising the colour wheel to make interesting colour choices. They will be able to select cultural references with meaning to their end user and incorporate this into their work.</li> <li>Students will have a clear understanding of how felt is produced and its working properties</li> <li>Students will be able to use a sewing machine to work in straight lines with a straight stitch.</li> </ul> | <ul style="list-style-type: none"> <li><b>Development:</b> Understand the importance of planning in design when there are many processes going on at once.</li> <li>The students will all create their own USB LED light by soldering components to a circuit, they will be able to identify problems when testing.</li> <li>Students will use skills learnt on the sewing machine in the previous project to use both sewing machine and embellisher if needed. They will also use hand sewing techniques to construct their electronic circuit</li> </ul>  |
| <b>Complex Knowledge</b>                  | <ul style="list-style-type: none"> <li><b>Complex:</b> some students will have isometric views. Some students will be able to add <u>internal</u> curves, either cut with a hacksaw or using the nibbler and filed appropriately.</li> </ul>   | <ul style="list-style-type: none"> <li><b>Complex:</b> students should be able to cut complex curves using scissors to produce products that use a range of mechanisms as appropriate. Their outcome will be engaging and eye catching. They will be able to analyse the product in terms of user need, function, environmental impact and material choices. They are confident in being constructively critical of their work</li> </ul>  | <ul style="list-style-type: none"> <li><b>Complex:</b> students should be able to link different cultural references to produce a homogenous design.</li> <li>Students are able to accurately give reasons for using felt in this project with reference to its materials and working properties.</li> <li>Students work will display a range of machine and hand sewn stitches</li> </ul>   | <ul style="list-style-type: none"> <li><b>Complex:</b> To be able to use and apply knowledge of materials and processes to evaluate manufacturing process and design choices.</li> <li>Students will also be able to apply their knowledge in exam style questions.</li> </ul>   |
| <b>Links with the National Curriculum</b> | <ul style="list-style-type: none"> <li>Develop design specifications</li> <li>develop and communicate design ideas using annotated sketches and 3D modelling</li> <li>analyse the work of the past</li> <li>annotated sketches</li> <li>understand properties of material</li> <li>variety of approaches to creating ideas, (mix and match)</li> <li>use specialist tools, techniques and processes</li> <li>use materials with consideration to properties</li> <li>use a variety of approaches to generate creative ideas</li> <li>develop the creative, technical and practical expertise</li> <li>build and apply a repertoire of knowledge, understanding and skills</li> </ul> | <ul style="list-style-type: none"> <li>Identify and solve design problems</li> <li>develop ideas through 3D modelling</li> <li>annotated sketches</li> <li>analyse the work of the past</li> <li>specialist tools and materials</li> <li>range of materials</li> <li>use specialist tools, techniques and processes</li> <li>mechanical systems used in movement</li> <li>use a variety of approaches to generate creative ideas</li> <li>build and apply a repertoire of knowledge, understanding and skills</li> <li>critique, evaluate and test their ideas and products and the work of others</li> <li>test, evaluate and refine their ideas</li> </ul> | <ul style="list-style-type: none"> <li>develop and communicate design ideas using annotated sketches and 3D modelling</li> <li>use specialist tools, techniques and processes</li> <li>use materials with consideration to properties</li> <li>annotated sketches, detailed plans and, digital presentation and CAD tools</li> <li>range of materials</li> <li>identify and solve their own design problems</li> <li>investigate new and emerging technologies</li> <li>use a variety of approaches to generate creative ideas</li> </ul>  | <ul style="list-style-type: none"> <li>Develop design specifications</li> <li>use a variety of approaches to generate ideas</li> <li>annotated sketches</li> <li>specialist tools and materials</li> <li>range of materials</li> <li>understand properties of material</li> <li>work of past and present</li> <li>evaluate against specification</li> <li>understand electrical systems</li> <li>apply computing and use electronics to embed intelligence in products that respond to inputs</li> <li>use specialist tools, techniques and processes</li> <li>develop the creative, technical and practical expertise</li> <li>build and apply a repertoire of knowledge, understanding and skills</li> </ul> |



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|  | <ul style="list-style-type: none"> <li>use research and exploration, such as the study of different cultures, to identify and understand user needs</li> <li>test, evaluate and refine their ideas</li> </ul>   |  | <ul style="list-style-type: none"> <li>develop the creative, technical and practical expertise</li> <li>use specialist tools, techniques and processes</li> </ul>   | <ul style="list-style-type: none"> <li>critique, evaluate and test their ideas and products and the work of others</li> <li>use research and exploration, such as the study of different cultures, to identify and understand user needs</li> <li>test, evaluate and refine their ideas</li> </ul>  |
| <b>Literacy (including reading)</b>                      | Ductile, Malleable, Toughness, Hardness, Arts and Crafts Movement, Steel, Aluminium, Brass, Copper, Tempered, Ferrous, Non ferrous, Alloy, Hacksaw, Vice, Pillar drill, File, Abrasive, Heat treatment, Burr, Drill bit, Isometric  | <ul style="list-style-type: none"> <li>lever, cams, mechanical advantage, coping saw, belt facer, goggles, story board, pivot, fulcrum,</li> <li>Isometric, Control, Constrain, Change, Motion, Linear, Rotary,</li> <li>Reciprocal, Oscillating, Exploded,</li> <li>Scale, Ratio, Diameter, Radius,</li> <li>Dimension</li> </ul> | <ul style="list-style-type: none"> <li>Iterative, evaluate, modelling, prototype, bonded, knitted, woven,, tolerance, surface pattern, stencilling, vectorise, accuracy, layers, embroidery, applique, popular culture, design fixation, negative space, positive space,</li> </ul> | <ul style="list-style-type: none"> <li>Iterative, evaluate, modelling, prototype, bonded, knitted, woven, nesting, netts, joints, dowel, tolerance, block printing, surface pattern, stencilling, vectorise, accuracy, layers, embroidery, applique, popular culture, feminism, design fixation, negative space, positive space, components, resistor, ohm's law, LED, PCB (printed circuit board), soldering, circuit, volcano, mass production, batch production, bespoke, planning,</li> </ul> |
| <b>Cultural Capital</b>                                  | <ul style="list-style-type: none"> <li>Traditional crafts skills</li> <li>the Arts and crafts movement as a reaction against mass production</li> <li>local economy</li> </ul>  | <ul style="list-style-type: none"> <li>climate change</li> <li>Cabaret Mechanical Theatre.</li> <li>Native Trees and impact of Woodlands</li> </ul>  | <ul style="list-style-type: none"> <li>universal standards for communication</li> <li>use of images for communication and some historical uses</li> <li>Own cultural identity and how it is represented in symbols</li> </ul>   | <ul style="list-style-type: none"> <li>Understanding and appreciation of sub cultures and people desires to belong to a group</li> </ul>  |
| <b>Social, Moral, Spiritual and Cultural Development</b> | <ul style="list-style-type: none"> <li>supporting local business and reducing carbon footprints.</li> </ul>   | <ul style="list-style-type: none"> <li>Designing for a user of their choice</li> <li>Understanding of our changing landscape</li> <li>appreciation of trees and their uses</li> </ul>  | <ul style="list-style-type: none"> <li>Designing for a younger audience.</li> <li>social, moral and ecological implications of using man made textiles</li> </ul>   | <ul style="list-style-type: none"> <li>The rise of youth and popular culture in the 1960's</li> <li>British made products</li> <li>The use of design to make people feel and be safer in tie day to day lives</li> </ul>  |
| <b>Fundamental British Values</b>                        | LAW - Workshop safety, legislation and PPE<br>RESPECT - respect of equipment and other people's space   | Respect and tolerance- of people in different circumstances<br>LAW - Workshop safety, legislation and PPE<br>DEMOCRACY - political refugees  | <ul style="list-style-type: none"> <li>Respect and tolerance</li> <li>Rule of law- British Standards used in communication drawings</li> </ul> RESPECT - cultures and religions (lesson 1)  | LAW - Workshop safety, legislation and PPE<br>RESPECT - respect of equipment and other peoples space<br>LIBERTY - Women's rights and the rise of the teenager   |
| <b>Assessment</b>  | <b>Assessment Details</b><br>Metals theory - self assessment<br>Design work- initial and developed ideas - teacher assessed - rubric<br>Final product teacher assessed rubric<br>End of unit test- theory and processes - peer marked and recorded on dept marksheets<br>Homework - 9 tasks over 18 weeks (1 per fortnight) | <b>Assessment Details</b><br>Cams Assessment 1 - summative assessment in book - peer/teacher marked<br>Design Communication - Mark scheme - rubric<br>Health and Safety Quiz - in books - peer/teacher marked<br>Evaluation questions - Mark scheme - Rubric<br>Homework - 8 tasks over 18 weeks (1 per fortnight) + revision      | <b>Assessment Details</b>   | <b>Assessment Details</b><br>Work is formatively assessed during the lessons by the member of staff and verbal feedback given during tasks to support individual student progress.<br><br>KEY PIECES OF ASSESSMENT<br>Design Assessment - Rubric<br>EYE Assessment - summative test<br>Homework - 4 tasks over 8 weeks (1 per fortnight)<br>End of Key Stage Exhibition   |



**ASHLAWN SCHOOL**