

## Design & Technology – KS3 Curriculum Summary (2023-2024)



Year 7: Introducing key processes and approaches and building confidence. A foundation in DT.			
Picture Frame	Pop-up card & badge	Batik	Night Light
<p><b>Aim</b> - To develop hand tool skills in Resistant Materials.</p> <p><b>Theme</b> – A Picture or theme set by teacher.</p> <p><b>Key techniques</b> – Coping saw, try square, tenon saw, mitre saw and disc sander.</p> <p><b>Key theory</b> – Wood properties and uses, including sustainability.</p> <p><b>Maths and Science</b> – Measuring accurately in mms, angles, material properties.</p> <p>Produce a working drawing using correct conventions.</p>	<p><b>Aim</b> - To develop modelling and designing skills using card engineering.</p> <p><b>Theme</b> – Equality.</p> <p><b>Key techniques</b> – Cutting, folding and assembling card and paper, cutting knives and mats.</p> <p><b>Key Theory</b> – Systems and control approach with mechanisms. Types of movement, paper and board theory.</p> <p><b>Maths and Science</b> – Measuring in mms, using angles and simple card mechanisms.</p>	<p><b>Aim</b> - To develop design and design development skills through fabric design in textiles.</p> <p><b>Theme</b> – Biomimicry / Nature.</p> <p><b>Key techniques</b> – Repeat patterns, drafting design plan and batik using kettles and tjanting and dyes.</p> <p><b>Key theory</b> – Textiles origins / properties and sustainability.</p> <p><b>Maths and Science</b> – Translations of shapes, mixing colours in the spectrum, changing material properties with heat.</p>	<p><b>Aim</b> - To develop systems and control knowledge through simple electronic circuits, complex circuit boards and CAD through 2D design tools.</p> <p><b>Theme</b> – Festivals / Light.</p> <p><b>Key techniques</b> – Making an electronic circuit using tracktronsics and a more complex circuit board, designing the light using 2D design tools.</p> <p><b>Key theory</b> – Systems and control theory, electronic components and symbols. Batteries and energy storage.</p> <p><b>Maths and Science</b> – Working with electricity and designing circuits. Resistor codes.</p>

**Year 8:** Increasing independence and using more complex and challenging materials and processes. Beginning to explore processes beyond the classroom.

Mechanical toy	Jewellery	Package	3D Toy
<p><b>Aim</b> - To build on systems and control experience for the badge in yr7 through mechanical systems, also simple machinery for RM.</p> <p><b>Theme</b> – User centred.</p> <p><b>Key techniques</b> – Using modelling to test all ideas then manufacturing to use coping saws, hegners, disc sander and electric drills.</p> <p><b>Key theory</b> – Types of movement and mechanism, specifically linkages and levers. Man-made boards and sustainability.</p> <p><b>Maths and Science</b> – Mechanical systems and forces, levers and linkages. Accurate measuring.</p>	<p><b>Aim</b> - To explore metals and heat treatments through enamelling.</p> <p><b>Theme</b> – Past and present professional designers.</p> <p><b>Key techniques</b> – Tin snips, files and abrasive papers, hole punch and heat treatments. Use of stencils.</p> <p><b>Key theory</b> - Metals properties and uses. Changing materials using heat. Origins of metals.</p> <p><b>Maths and Science</b> – Changing material properties with heat and material properties.</p>	<p><b>Aim</b> - To develop higher CAD skills through the design of nets on 2D design tools and more complex decoration in Illustrator for logos and surface decoration.</p> <p><b>Theme</b> – Past and present professional designers.</p> <p><b>Key techniques</b> – Paper modelling 2D Design tools for nets, and illustrator for logo and surface decoration. Accuracy of nets vital.</p> <p><b>Key theory</b> – CAD/CAM theory commercial manufacturing of packaging. PLA.</p> <p><b>Maths and Science</b> – Nets and translation of shapes, measuring and angles. Calculating areas and volume.</p>	<p><b>Aim</b> - To produce a 3D textiles toy developing improved manufacturing skills with a focus on accuracy.</p> <p><b>Theme</b> – Based on 4 key users given by teacher.</p> <p><b>Key techniques</b> – Making paper patterns, cutting and assembling a neat 3D product using hand stitching.</p> <p><b>Key theory</b> – Stock forms and textile choices based on texture, sheen, etc. How textiles are made. Fibre to yarn to cloth.</p> <p><b>Maths and Science</b> – Measurements and translation of measurements and properties of fabrics.</p>

**Year 9:** Working on complex products and processes with pre- GCSE techniques, independence and choice. Looking at how things are made in industry. Links to GCSE AQA (8552)

Bag	Clock
<p><b>Aim</b> - To fully research ideas and techniques making independent choices for the decoration and assembly of a tote bag. High quality hand making skills and sewing machines.</p> <p><b>Theme</b> – Cultural influences and end retail choice.</p> <p><b>Key techniques</b> – Screen printing, applique, embroidery, fabric painting, quilting, beading and texture. Assembly of the cotton tote bag using the sewing machine.</p> <p><b>Key theory</b> – Embellishment techniques, cultural themes and designers working in the field. Commercial screen and digital printing. Quality control. Retail issues and marketing.</p> <p><b>Maths and Science</b> – Complex pattern design, translation of shapes and repetition. Material properties and choice. Handle length and anthropometric data, using data and graphs.</p>	<p><b>Aim</b> - To fully research ideas and techniques making independent choices for the manufacture of a clock using CAD/CAM and the laser cutter. Complex layering issues and CAD drawing skills.</p> <p><b>Theme</b> – Past and present designers. Using list from AQA spec and supplied.</p> <p><b>Key techniques</b> – Engraving, embedding, layering and cutting acrylics. Modelling in card.</p> <p><b>Key theory</b> – Designers and their influence, CAD/CAM, Plastics properties and uses. Sustainability issues and plastics.</p> <p><b>Maths and Science</b> – Use of digital technologies, Vectors in CAD, laser technology and industrial processes. Material properties (Plastics origin and characteristics). Working drawings and conventions.</p>