

## Curriculum sequence overview: Design + Innovation Yr7-8 + Yr9

|          | Introduction to Design + Innovation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Food + Cookery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Fashion + Textiles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| Y7<br>Y8 | <p><b><u>Introduction to Design + Innovation</u></b></p> <p>For the first 13 weeks of Year 7, learners will complete an introduction unit where they will experience different subject areas for mini taster sessions, before beginning a regular carousel rotation of those subject areas until the end of Year 8. The aim is to provide learners with a range of basic skills which will be developed over the next 2 years.</p> <ul style="list-style-type: none"> <li>Personalised design task based on learner's likes and interests.</li> <li>Baseline quiz to show us what learners already know about D+I.</li> <li>Textiles practical sample of surface decoration and embroidery</li> <li>Designing clothing items to a specification.</li> <li>Sending emails using the school email account.</li> <li>Using the internet to find out information.</li> <li>Learning safe knife skills and making a fruit salad.</li> <li>Using beginner baking skills to make flapjacks.</li> <li>Learning workshop health and safety.</li> <li>Using tools and equipment to measure, mark, and cut timber.</li> <li>Learning to render design work correctly using pencil crayons.</li> <li>Learning the basics of using grids to draw: square and isometric.</li> <li>Short written assessment to show what has been learned.</li> <li>Learning how to create and customise simple pop-up mechanisms.</li> </ul> | <p><b><u>Food + Cookery: Lunchtime &amp; world foods</u></b></p> <p>Learners will acquire a range of food &amp; nutrition-related knowledge through a range of exercises. Alongside this, learners will develop their practical skills by hygienically creating a range of food products following the principles of food safety.</p> <ul style="list-style-type: none"> <li>Follow health &amp; safety rules to prepare a range of meals &amp; snacks.</li> <li>Practice &amp; develop a number of key food preparation skills, including using all parts of the cooker.</li> <li>Evaluate the products made based on the sensory properties of the dishes &amp; own skills.</li> <li>Understand &amp; apply the principles of a healthy diet (based on the eatwell guide &amp; 8 tips).</li> <li>Recall the names of nutrients; discuss sources &amp; functions.</li> <li>Explain how bacteria can be reduced &amp; minimised; know the key temperatures relating to food safety.</li> <li>Use the senses to evaluate different foods including using taste testing skills to analyse existing products.</li> <li>Explore social &amp; moral issues relating to food choice; including fair trade, organic, food miles, food waste.</li> <li>Understand &amp; state/explain the functions of ingredients.</li> <li>Show understanding of ingredients by designing food products.</li> </ul> | <p><b><u>Fashion + Textiles: Cultural Influences: Mexico + Japan</u></b></p> <p>Learners will design &amp; make two fabric pieces: a pencil-case pouch, taking decorative inspiration from the Day of the Dead festival; &amp; a wall-hanging fabric art piece, taking inspiration from Japanese life.</p> <ul style="list-style-type: none"> <li>Learn basics of using a sewing machine to construct textiles.</li> <li>Research Mexican culture to inform design ideas.</li> <li>Prepare fabric and apply cold-water dyes.</li> <li>Learn about common natural and synthetic fibres and fabrics.</li> <li>Design Sugar Skulls inspired by personal interests.</li> <li>Make a personalised pencil-case pouch using a range of skills.</li> <li>Research Japanese Culture to inform design ideas.</li> <li>Use the Japanese Shibori resist-dyeing technique.</li> <li>Learn about different fabric construction methods.</li> <li>Use CAD/CAM to create and print a graphic onto fabric.</li> <li>Learn about and use the process of sublimation printing.</li> <li>Develop surface decoration and hand-embroidery skills.</li> </ul> |
|          | <p><b>Design + Technology: Material Properties</b></p> <p><b><u>D+T: Material Properties: Polymers + Metals</u></b></p> <p>Knowledge of Polymers &amp; metals, polymer &amp; metal manufacture methods, complete a design process to manufacture a series of products.</p> <ul style="list-style-type: none"> <li>Name &amp; describe the properties of different polymers &amp; metals.</li> <li>Explain the categories of polymers &amp; metals.</li> <li>Describe key plastic manufacturing methods.</li> <li>Create a suitable design brief &amp; specification.</li> <li>Analyse relevant existing products.</li> <li>Communicate my ideas with drawings &amp; annotations.</li> <li>Create &amp; use a template to improve accuracy.</li> <li>Understand health &amp; safety in a workshop environment.</li> <li>Manufacture a series of products using different tools, equipment &amp; machines.</li> <li>Complete a series of evaluations of my products.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p><b>Design + Innovation: Systems + Devices</b></p> <p><b><u>D+T: Systems + Devices: Mechanisms + Electronics</u></b></p> <p>Types of motion, parts of a lever, linkages &amp; CAMs. Cams, levers, forces, motion &amp; linkages. Applying knowledge to mini practical projects. Electrical components, navigation around 2D Design, Soldering &amp; Laser cutting.</p> <ul style="list-style-type: none"> <li>Name &amp; describe the four types of motion.</li> <li>Explain how a lever works &amp; its component parts.</li> <li>Calculate the effort required to lift the load on a lever.</li> <li>Describe the input &amp; output of a given linkage.</li> <li>Name &amp; describe the motion of CAMs.</li> <li>Name &amp; describe the function of a variety of electrical components.</li> <li>Navigate around 2D Design.</li> <li>Calculate the value of resistors.</li> <li>Safely &amp; accurately solder components onto a PCB.</li> <li>Evaluate &amp; test your work against a manufacture job card.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                | <p><b>Information + Computer Technology</b></p> <p><b><u>ICT: e-Safety, Computing Basics + Micro:bit Programming</u></b></p> <p>Email, passwords, PP, word. E-Safety. Computing - graphical programming. Data storage, Binary, Python, input &gt; Process &gt; output systems model, image manipulation</p> <ul style="list-style-type: none"> <li>Send an email on the school system.</li> <li>Use PowerPoint to produce a presentation.</li> <li>Use word to construct a document.</li> <li>Identify ways to keep me safe online.</li> <li>Use Kodu to make a computer game.</li> <li>Describe inputs, outputs &amp; data storage on computers.</li> <li>Convert decimal numbers to binary &amp; back.</li> <li>Use Python to construct computer programs.</li> <li>Understand how images are stored on computers.</li> <li>Use graphical techniques to produce an image.</li> </ul>                                                                                                                                                                                                                                                 |

All Yr7 learners will complete the Design + Innovation: Introduction rotation in the first term of year 7. They will then complete the other subject rotations on a carousel across year 7 and year 8.

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| Y9 | <p><b><u>Design + Innovation in Year 9</u></b><br/>In the last half-term of year 8, learners are presented with the offered subject areas – based upon some of our KS4 (GCSE or equivalent) subjects. Learners are then given the opportunity to put the five offered subjects into order of preference – from most preferred to least preferred. These preferences are then used to group the learners for year 9, where they will study three of the five areas. In most cases learners will get their top three preferences, in some order. Some learners may get given their fourth preference depending on group sizes (no learner will be given their fifth choice).</p> <p>The idea is to give learners a more in-depth experience in the subject areas, where more content can be delivered and skills learned can be developed further. Design + Innovation in year 9 will provide a good base of skills which should provide useful if a learner chooses one (or more) of our subjects for year 10 (learners are free to choose any option subjects for year 10 whether they have studied them in year 9 or not).</p> | <p><b><u>Food + Cookery: Food for life</u></b><br/>Learners will build on the knowledge already acquired during year 7 or 8 to explore how food is needed for a healthy lifestyle. Alongside this, learners will further develop their practical skills by hygienically creating a range of more challenging food products following the principles of food safety.</p> <ul style="list-style-type: none"> <li>• Further develop food preparation skills. These include more complex techniques such as pasta &amp; pastry making ensuring health &amp; safety rules are followed.</li> <li>• Evaluate the products made based on the sensory properties of the dishes &amp; own skills.</li> <li>• Recap nutrients &amp; analyse meals against the eatwell guide.</li> <li>• Deepen the understanding of nutrition by exploring the health benefits of a variety of vitamins.</li> <li>• Broaden the knowledge of food choice to include (amongst other factors) an awareness of allergens &amp; seasonal products.</li> <li>• Develop an awareness of food provenance: where food comes from for foods that are grown, reared or caught.</li> <li>• Apply the understanding of nutrition by designing food products which alter the nutritional profile to meet a dietary need.</li> </ul> | <p><b><u>Fashion + Textiles: Clothing + Accessories</u></b><br/>Learners will customise a plain, white t-shirt by using a combination of developed textiles skills: resist-dyeing; sublimation printing; &amp; hand-embroidery &amp; will design &amp; make a personalised/monogrammed calico tote bag – developing skills of surface decorations; machine sewing; &amp; three-dimensional textile product construction.</p> <ul style="list-style-type: none"> <li>• Design a fashion capsule-collection for teenagers, for a famous brand (of own choice).</li> <li>• Explore visual elements of art and design to develop ideas for line, pattern, colour, texture, etc. inspired by personal interests.</li> <li>• Develop skills of hand-sketching designs by modifying basic fashion silhouettes, using a range of customisation options.</li> <li>• Develop skills of fashion illustration – initially by hand drawing, then by using computer-aided design to generate colourways.</li> <li>• Recap knowledge of textiles fibres and fabrics.</li> <li>• Build on resist-dyeing skills learned in year 7/8.</li> <li>• Build on sewing-machine skills learned in year 7/8 to construct functional textile items.</li> <li>• Develop surface decoration skills – including, drawing and painting on fabric, and sublimation printing.</li> </ul> |
|    | <b>D+T: Materials: Timbers</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Computer-Aided Design</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Creative iMedia</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|    | <p><b><u>D+T: Material Properties: Timbers</u></b><br/>Knowledge of woods, timber manufacture methods, using iterative design principles to manufacture a product.</p> <ul style="list-style-type: none"> <li>• Name &amp; describe the properties of different timbers.</li> <li>• Name &amp; explain why a variety of joints are used.</li> <li>• Create a suitable design brief &amp; specification.</li> <li>• Create a client profile that influences the design process.</li> <li>• Analyse an existing product.</li> <li>• Communicate my ideas through drawings &amp; annotations.</li> <li>• Complete an iteration of an idea.</li> <li>• Safely manufacture a product including soldering.</li> </ul> <p>Complete an evaluation, testing the product against a specification.</p>                                                                                                                                                                                                                                                                                                                                     | <p><b><u>Computer Aided Design</u></b><br/>Use tutorials to complete complex 3D designs in Fusion 360, work towards a given brief, prepare a design for CAM/3D printing.</p> <ul style="list-style-type: none"> <li>• Give a description of the 3D printing process &amp; its uses.</li> <li>• Navigate around Fusion 360 confidently.</li> <li>• Work to a given brief successfully.</li> <li>• Apply knowledge of fusion tools to make parts &amp; components independently.</li> <li>• Demonstrate how to create a working drawing with accurate dimensions.</li> <li>• Demonstrate how to render a design.</li> <li>• Demonstrate how to prepare a design for CAM.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p><b><u>Creative iMedia: Visual Identity + Digital Graphics</u></b><br/>Pre-production documents: mind-maps, mood-boards, visualisation diagrams; colour theory; typography; textile printing methods; using Adobe Photoshop.</p> <ul style="list-style-type: none"> <li>• Produce pre-production documents: mind-maps &amp; mood-boards.</li> <li>• Use Photoshop to complete image manipulation (adjustments, filters).</li> <li>• Create &amp; present design ideas clearly using visualisation diagrams.</li> <li>• Make considered choices regarding the use of colour &amp; typography to suit chosen music genre.</li> <li>• Use Photoshop to produce digital graphic of original design for music artist of own choice.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |