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| **Design and Technology Curriculum Milestone 2** | | | | | | |
| **Area** | **Key Vocabulary** | **Sticky Knowledge** | | | **Essential Skills to be covered** | |
| **Food:**  Strawberry Tartlets  **Streetwise** | **Nutrition**  **Consumer**  **Pastry**  **Recipe**  **Tartlet**  **Strawberry syrup**  **Cream filling**  **Glaze** | * To make a pastry crust need to make a dough using following ingredients: egg yolk, cold water, vanilla extract, flour, sugar, salt and unsalted butter. * Strawberry tartlets tend to have a cream filling or cream cheese filling. * Need to refrigerate for up to 4 hours to allow the cream filling to set. * A glaze gives a nice finish. Simply melt strawberry jam and water together. | | | * **Design and Make the perfect Farndon Strawberry Tartlet** * Know what to do to be hygienic and safe when cooking. * Think how they can present their tartlet in an interesting and attractive way. * Choose the right ingredients for their tartlet and assemble them accurately. * Use knives when cutting safely. * Follow a recipe accurately and cook ingredients with an oven. * Measure ingredients with scales to the nearest gram. | |
| **Control:**  Torches to explore mountains / caves  **Survival** | **Circuit**  **Bulb**  **Wire**  **Insulation**  **Switch**  **Reflector**  **Lamp**  **Lens**  **Casing** | * A switch simply puts a temporary break in the circuit. * The casing is a tube like shape containing the electrical parts. * Most flashlights include a reflector around the light source to gather the light and focus it out the front. | | | * **Design and Make a type of lighting device for surviving in a cave on a mountain with the user in mind (water proof? Head mounted? Compact?** * Make a product with an electrical component that is controlled by a switch. * Choose suitable techniques to construct a torch like device. * Create simple circuit and add components into it. * Be confident trying out new ideas. | |
| **Textiles:**  Felt trousers for Ug  **It All Started in a Cave** | **Seam**  **Felt batt**  **Bubble wrap**  **Stitching**  **Running stitch**  **Blanket Stitch**  **Template** | * A felt batt is the base of all felt; a 3 way layer of fibres that creates one solid piece of material. * Fourth layer is the decoration of the trousers. * The blanket stitch is commonly used to finish the edges of the blankets. | | | * **Make felt, and turn it into trousers for Stoneage Ug** * Think what the user would want with their new trousers. * Devise a template for their trousers. * Explain how to join things in different ways with appropriate stitching. * Choose textiles for their appearance and qualities. * Understand need for a seam allowance for sewing. * Select appropriate decorative techniques. | |
| **Mechanism**  Pop Up Books  **Dungeons and Dragons** | Fold  Scoring  Crease  Flap  Push / Pull  Rotary movement  Linear movement  Levers  Linkages  Temporary fixing | * Scoring is used with thick card; cut through the surface of the card and it then allows for a sharper fold. * When using a V shaped pop up mechanism, if less than 90 degree angle, it leans back. If more than 90 degrees it leans forward. * Pop up box technique can create 3D design. * Layered mechanisms give the impression of depth. * A sliding mechanism produces linear movement (left / right / up / down). * A rotary mechanism gives a circular movement. | | | * **Design and Make a pop-up book for Dungeons and Dragons.** * Measure and mark out accurately. * Work accurately make and cut holes and slots; use scoring and creasing to fold precisely. * Select the most appropriate materials and cut accurately and safely to the nearest mm. * Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). * Select appropriate temporary and permanent joining techniques. * Choose appropriate mechanism for the product including levers, linkage, rotary or layering. | |
| **Structure**  Roman shields (or Photo frame for Italy scene)  **They Came, They Saw, They Conquered**.    **Or**  **Structure**  Roman Bridges | Decoration  Stable  Free standing  Stiffen  Frame  Sturdy  Reinforce  Acetate  Transparency  Triangular base | * It is more difficult to make a structure with a wide base topple over; the wider the base the more stable it is. * Triangles are good at making structures more stable as they evenly distribute weight and have a firm base. | | | * **Create a photo frame for pictures of Rome to remind the Roman centurions of home. (Or a Roman shield with a focus on strengthening structure)** * Measure carefully when cutting materials out. * Explain how they have made their product strong, using suitable techniques. * Explore different techniques to make a free standing structure. * Use appropriate finishing techniques on their frame relating to the theme. * Select appropriate joining techniques in their frame structures. | |
| Folding  Corrugating  Box section  Cross section  Triangulation  Suspension  Arches  Cantilever  Beam  Key Stone | * There are many different types of bridge: beam, arch, cable-stayed, suspension, cantilever. * There are many famous bridge engineers: eg Severn bridge, Tower Bridge; John Wolfe Barry and Sir Horrace Jones. * Romans, were the first to build large and lasting bridges which were built with stone and had the arch as the basic structure. * Arch bridges have arches as their main structural component which are located below the bridge. * Beam bridges are supported by beams that are usually V shaped. | | | * **Study the aquaducts and bridges of the Romans and create their own bridges.** * Different materials can be used: steel, brick, wood, iron, rivets * How to work safely using tools and equipment. * How to strengthen a material or structure design using materials * The design of particular bridges makes them particularly successful considering their purpose and location (eg Severn Bridge, Tower Bridge). * Produce cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design can support the design process overall. * Needs to include the evaluation of existing structures that will inform their own. * Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. * Use annotated sketches and prototypes to develop, model and communicate ideas. * Select from and use appropriate tools with some accuracy to cut, shape, measure, mark, cut out and join paper and card. * Evaluate their own products and ideas against criteria and user needs, as they design and make. | |
| **Mechanism**  Moving Mythical Monsters  **Gods and Mortals** | Syringe  Pneumatic system  Pressure  Inflate  Deflate  Input  Output  Compress | * Pneumatics is using compressed air to transmit force and make something move. | | | * **Create a mythical beast with moving parts using pneumatics.** * Make a product with a moving part using a mechanical system (pneumatic system). * Use a number of components in their mechanical system. * Take time to consider how to improve their design. * Cut materials accurately and safely by selecting appropriate tools. * Apply appropriate cutting and shaping techniques such as slots or cut outs. | |
| **Design Technology Project Skills** | | | | | | |
| **Developing, Planning and Communicating Ideas** | | | **Working with tools, materials and equipment to make products** | **Evaluate and improve processes and products** | | **Inspiration from design in history** |
| * Show how their design meets the requirements of the brief. * Put together a step by step plan to show the order what to do, and the tools and equipment needed. * Describe their design with a labelled sketch to others. * Take into account the ideas of others when designing. * Make realistic designs that are achievable. | | | * Show a good level of expertise when handling a range of tools and materials. * Conscience of the need to produce a product that will be liked by others. * Refine work and techniques as work progresses, continually evaluating the product design. | * Know how to check if their design has been successful. * Recognise any changes made to their design during the build that made it better. * Evaluate their product on both its appearance and the way it works. | | * Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. * Improve upon existing designs, giving reasons for choices. * ***Disassemble products*** to understand how they work. |