

MTP for D.T Year 6

National Curriculum aim 1	National Curriculum aim 2	National Curriculum aim 3
<p><b>Structures</b> To strengthen, stiffen and reinforce a structure.</p>	<p><b>Electrical system</b> To create an electrical system controlled by a circuit.</p>	<p><b>Cookery</b> Design and create their own recipe.</p>
<p><b>Lesson Sequence</b></p> <ul style="list-style-type: none"> <li>Lesson 1 – Research different bridges, their features and purposes.</li> <li>Lesson 2 – To explore ways in which pillars and beams are used to span gaps. (make a freestanding bridge)</li> <li>Lesson 3 – testing materials for strength and rigidity</li> <li>Lesson 4 – Reinforce structures with triangulation.               <ul style="list-style-type: none"> <li>Lesson 5 – Design their own bridge.</li> </ul> </li> <li>Lesson 6 – Make and evaluate their product.</li> </ul>	<p><b>Lesson Sequence</b></p> <ul style="list-style-type: none"> <li>Lesson 1 – Research existing products and their purpose               <ul style="list-style-type: none"> <li>Lesson 2 – Explore switches in electrical circuits.</li> <li>Lesson 3 – Explore electrical circuits.</li> </ul> </li> <li>Lesson 4 - Investigate how to create circuits with a variety of different components.               <ul style="list-style-type: none"> <li>Lesson 5 – Design their own game</li> </ul> </li> <li>Lesson 6 – make and evaluate their product.</li> </ul>	<p><b>Lesson Sequence</b></p> <ul style="list-style-type: none"> <li>Lesson 1 – Gain an understanding of bread (history and bread around the world)</li> <li>Lesson 2- Compare and evaluate homemade bread and shop bought bread.               <ul style="list-style-type: none"> <li>Lesson 3 – Health and Safety</li> </ul> </li> <li>Lesson 4 – Taste different ingredients which can change the flavor of dough               <ul style="list-style-type: none"> <li>Lesson 5 – To create a recipe for their own dough.</li> <li>Lesson 6 – Make and evaluate their own dough.</li> </ul> </li> </ul>
<p><b>Assessment</b></p>	<p><b>Assessment</b></p>	<p><b>Assessment</b></p>
<p><b>PROJECT: BUILDING BRIDGES</b></p> <p>Children will create a bridge to cross the River Wear which is for pedestrians and cyclists only to give them a safe crossing away from a busy road which uses at least 2 different techniques for reinforcement, strengthening and stiffening including selection of appropriate materials and choice of shape. The final product will demonstrate/reflect the key skills, knowledge and vocabulary gained across the unit.</p>	<p><b>PROJECT: BUZZ WIRE GAME</b></p> <p>Children will design and create an entertaining buzz wire game for children which uses a buzzer component for sound and a simple self-made switch to control the circuit overall. The final product will demonstrate/reflect the key skills, knowledge and vocabulary gained across the unit.</p>	<p><b>PROJECT: THE BAKEHOUSE - BREAD</b></p> <p>Children will design and create a recipe for bread which incorporates at least two ingredients to flavour the dough working safely and hygienically. They will demonstrate and use their skills to peel, chop, slice, grate, mix, knead and bake. The final product will demonstrate/reflect the key skills, knowledge and vocabulary gained across the unit.</p>
<p><b>Key knowledge</b></p>	<p><b>Key knowledge</b></p>	<p><b>Key knowledge</b></p>
<ul style="list-style-type: none"> <li>Building on prior knowledge of net structures and broadening knowledge of frame structures</li> <li>Exploring how to create a strong beam</li> <li>Identifying arch and beam bridges and understanding the terms: compression and tension</li> <li>Knowing that structures can be strengthened by manipulating materials and shapes</li> <li>Implementing frame and shell structure knowledge</li> <li>Identifying stronger and weaker structures</li> <li>Finding different ways to reinforce structures</li> <li>Understanding how triangles can be used to reinforce bridges</li> </ul>	<ul style="list-style-type: none"> <li>Learning the key components used to create functioning circuit</li> <li>Understanding that breaks in a circuit will stop it from working</li> </ul>	<ul style="list-style-type: none"> <li>Learning how to research a recipe by ingredient</li> <li>Recording the relevant ingredients and equipment needed for a recipe</li> <li>Understanding the combinations of food that will complement one another</li> </ul>

<ul style="list-style-type: none"> <li>Articulating the difference between beam, arch, truss and suspension bridges</li> </ul>		
Key skills	Key skills	Key skills
<p><b>Design:</b></p> <ul style="list-style-type: none"> <li>Draw on market research to inform design</li> <li>Use research of user's individual needs, wants, requirements for design</li> <li>Identify features of design that will appeal to the intended user</li> <li>Create own design criteria and specification</li> <li>Come up with innovative design ideas</li> <li>Follow and refine a logical plan.</li> <li>Use annotated sketches, cross sectional planning and exploded diagrams</li> <li>Make design decisions, considering, resources and cost</li> <li>Clearly explain how parts of design will work, and how they are fit for purpose</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>use selected tools and equipment precisely</li> <li>Produce suitable lists of tools, equipment, materials needed, considering constraints</li> <li>Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics</li> <li>create, follow, and adapt detailed step-by-step plans</li> <li>Explain how product will appeal to audience; make changes to improve quality</li> <li>Accurately measure, mark out, cut and shape materials/components</li> <li>Accurately assemble, join and combine materials/components</li> <li>Accurately apply a range of finishing techniques</li> <li>Use techniques that involve a number of steps</li> </ul> <p>Be resourceful with practical problems.</p> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>Evaluate quality of design while designing and making; is it fit for purpose?</li> <li>keep checking design is best it can be.</li> <li>Evaluate ideas and finished product against specification, stating if it's fit for purpose</li> <li>Test and evaluate final product; explain what would improve it and the effect different resources may have had</li> <li>Do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose</li> </ul>	<p><b>Design:</b></p> <ul style="list-style-type: none"> <li>Draw on market research to inform design</li> <li>Use research of user's individual needs, wants, requirements for design</li> <li>Identify features of design that will appeal to the intended user</li> <li>Create own design criteria and specification</li> <li>Come up with innovative design ideas</li> <li>Follow and refine a logical plan.</li> <li>Use annotated sketches, cross sectional planning and exploded diagrams</li> <li>Make design decisions, considering, resources and cost</li> <li>Clearly explain how parts of design will work, and how they are fit for purpose</li> <li>Independently model and refine design ideas by making prototypes</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>use selected tools and equipment precisely</li> <li>Produce suitable lists of tools, equipment, materials needed, considering constraints</li> <li>Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics</li> <li>create, follow, and adapt detailed step-by-step plans</li> <li>Explain how product will appeal to audience; make changes to improve quality</li> <li>Accurately measure, mark out, cut and shape materials/components</li> <li>Accurately assemble, join and combine materials/components</li> <li>Accurately apply a range of finishing techniques</li> <li>Use techniques that involve a number of steps</li> </ul> <p>Be resourceful with practical problems.</p> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>Evaluate quality of design while designing and making; is it fit for purpose?</li> <li>keep checking design is best it can be.</li> <li>Evaluate ideas and finished product against specification, stating if it's fit for purpose</li> <li>Test and evaluate final product; explain what would improve it and the effect different resources may have had</li> <li>Do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose</li> </ul>	<p><b>Design:</b></p> <ul style="list-style-type: none"> <li>Writing a recipe, explaining the key steps, method and ingredients</li> <li>Including facts and drawings from research undertaken</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>Following a recipe, including using the correct quantities of each ingredient</li> <li>Adapting a recipe based on research</li> <li>Working to a given timescale</li> <li>Working safely and hygienically with independence</li> </ul> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>Evaluating a recipe, considering: taste, smell, texture and origin of the food group</li> <li>Taste testing and scoring final products</li> <li>Suggesting and writing up points of improvements in productions</li> <li>Evaluating health and safety in production to minimise cross contamination</li> </ul>

<p>Discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground breaking product</p>	<ul style="list-style-type: none"> <li>Evaluate how much products cost to make and how innovative they are</li> </ul>	
<p><b>Key vocabulary</b></p>	<p><b>Key vocabulary</b></p>	<p><b>Key vocabulary</b></p>
<p>Assemble, vertex, breadth, scoring, adhesives, reinforce, triangulation, stability, temporary, permanent, functional, design brief, beam, bracing, column, foundations, frame structure, joints, slab, beam, arch, truss, suspension, cable-stayed, cantilever</p>	<p>Design specification, switch, bulb, device, motor, battery, symbol, buzzer, switch, insulator, conductor, circuit, connection, wire, complete, incomplete, net, aesthetics, component, user, output</p>	<p>Ingredients, yeast, dough, wholemeal, unleavened, , spice, herbs, carbohydrate, sugar, vitamins, nutrients, gluten, savoury, seasonality, pour, mix, knead, combine, fold, rubbing in, baking, prove, flavouring, shaping</p>
<p><b>Visits/visitors</b></p>	<p><b>Visits/visitors</b></p>	<p><b>Visits/visitors</b></p>
<ul style="list-style-type: none"> <li>Local bridges in the area</li> <li>Talk from someone involved in the design/construction of a bridge</li> <li>Locomotion workshop on bridges</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>Visit bakery</li> <li>Talk with a baker</li> </ul>