



# Long term planning for D+T



## INTENT:

At Teagues Bridge Primary School, our aim is that children gain a firm understanding of what design and technology is through investigative and evaluative activities

We aim to provide children with a wide range of experiences within our curriculum so that they develop a curiosity for the subject, as well as an understanding the importance of all types of design. We are committed to ensuring children understand the value and importance of design and technology in the wider community, and are able to use their D+T skills, knowledge in a variety of different contexts.

At Teagues Bridge Primary School, our D+T curriculum ensures that children are taught about different elements of D+T, learn subject specific vocabulary and develop a good understanding of how D+T has changed through history.

The National Curriculum for D+T aims to ensure that all pupils:

- Design a product for a range of audience
- Make a product
- Evaluate a product to improve and change

## IMPLEMENTATION:

At Teagues Bridge Primary School, we use the 'Products on a Page' scheme of work as a basis for our D+T lessons to ensure that children across the school are exposed to the key knowledge, skills and vocabulary needed. The 'Products on a Page' scheme of work is used to ensure a wide exposure to different aspects of design and technology.

Projects are based on

## IMPACT:

The D+T curriculum at Teagues Bride Primary School ensures that children develop a good understanding of D+T and develop an appreciation for D+T in different forms. Our D+T curriculum also develops an understanding of culture and history, both in relation to the children individually, as well as ethnicities from across the world.

Through our broad curriculum offer, children at Teagues Bridge Primary School are supported in building self-confidence, interaction with and awareness of others, and self-reflection.

Assessment for Learning reflections take place at the end of lessons and are used to show teachers what children have understood and provide the opportunity to identify misconceptions which need addressing in the next lesson.

Marking is used to address misconceptions, evaluate children's learning and teachers use this to inform their planning. In conjunction with marking, verbal feedback is used to address misconceptions and move learning forward instantaneously.

Ongoing questioning throughout lessons is used by all teachers and the outcome of this questioning is used to adapt lessons in response to the needs of children.

## D+T Curriculum Progression

EYFS	KSI		Lower KS2		Upper KS2		
Base 1 and 2	Year 1/2	Year 2 -	Year 3	Year 3/4	Year 4/5	Year 5/6	Year 6

### Concept Threads

*Substantive Concepts:* 'The Golden Threads' that flow through the D+T Curriculum, supporting teachers planning and enabling children to know and remember more are:

- Materials and components
- Mechanisms
- Appreciation of creativity

- History
- Culinary skills

## Big Questions

### Substantive Knowledge

#### Design

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| <ul style="list-style-type: none"> <li>- I know there are a range to different materials that can be used to make a model and that they are all slightly different.</li> <li>- I know how to make simple suggestions to fix junk models.</li> <li>- I know that 'waterproof' materials are those which do not absorb water.</li> <li>- I know that some objects float and others sink.</li> </ul> | <ul style="list-style-type: none"> <li>- I know the shape of materials can be changed to improve the strength and stiffness of structures.</li> <li>- I know that cylinders are a strong type of structure</li> <li>- I know that axles are used in structures and mechanisms to make parts turn in a circle.</li> <li>- I know that different structures are used for different purposes.</li> <li>- I know that a structure is something that has been made and put together</li> <li>- I know that shapes and structures with wide, flat bases or legs are the most stable.</li> <li>- I know that the shape of a structure affects its strength.</li> <li>- I know that materials can be manipulated to improve strength and stiffness.</li> </ul> | <ul style="list-style-type: none"> <li>- I know wide and flat based objects are more stable.</li> <li>- I know the importance of strength and stiffness in structures.</li> <li>- I know what a frame structure is.</li> <li>- I know a 'free-standing' structure is one which can stand on its own.</li> <li>- I know aesthetics are how a product looks.</li> <li>- I know a product's function means its purpose.</li> <li>- I know the target audience means the person or group of people a product is designed for.</li> <li>- I know architects consider light, shadow and patterns when designing.</li> <li>- I know a paper net is a flat 2D shape that can become a 3D shape once assembled.</li> <li>- I know a design specification is a list of success criteria for a product.</li> </ul> | <ul style="list-style-type: none"> <li>- I know some different ways to reinforce structures.</li> <li>- I know how triangles can be used to reinforce bridges.</li> <li>- I know that properties are words that describe the form and function of materials.</li> <li>- I know why material selection is important based on properties.</li> <li>- I know the material (functional and aesthetic) properties of wood.</li> <li>- I know the difference between arch, beam, truss and suspension bridges.</li> <li>- I know how to carry and use a saw safely.</li> <li>- I know what a 'footprint plan' is.</li> <li>- I know that in the real world, design, can impact users in positive and negative ways.</li> <li>- I know that a prototype is a cheap model to test a design idea.</li> </ul> |
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- I know that a structure is something which has been formed or made from parts.
- I know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.
- I know that a 'strong' structure is one which does not break easily.
- I know that a 'stiff' structure or material is one which does not bend easily.

## Disciplinary Knowledge

### Make

- I can fasten materials together.
- I can use different materials for a different purpose.
- I can use glue and other join methods.

- I can select tools, including kitchen tools, and materials; use correct vocabulary to name and describe them.
- I can follow a plan or basic recipe.
- I can build structures, exploring how they can be made stronger, stiffer and more stable.
- I can measure, cut and score with some accuracy.
- I can use hand tools safely and appropriately.
- I can assemble, join and combine materials in order to make a product.
- I can demonstrate how to cut, shape and join fabric to make a simple product.
- I can use basic sewing techniques.

- I can select a wider range of tools and techniques for making their product safely.
- I can place main stages of a plan or recipe, in order.
- I can measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques.
- I can join and combine materials and components accurately in temporary and permanent ways.
- I can use mechanical systems such as cams or pulleys or gears create movement.
- I can use more complex electrical circuits and components to create functional products.

- I can confidently select appropriate tools, materials, components and techniques and use them.
- I can independently plan by suggesting what to do next.
- I can use tools safely and accurately.
- I can assemble components to make working models.
- I can aim to make and to achieve a quality product.
- I can confidently pin, sew and stitch materials together to create a product.
- I can make modifications as I go along.

	<ul style="list-style-type: none"> <li>- I can start to choose and use appropriate finishing techniques based on own ideas.</li> </ul>	<ul style="list-style-type: none"> <li>- I can continue to learn how to program a computer to monitor changes in the environment and control my products.</li> <li>- I can reinforce and strengthen a 3D framework.</li> <li>- I can demonstrate how to measure, tape or pin, cut and join fabric with some accuracy.</li> <li>- I can use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</li> </ul>	<ul style="list-style-type: none"> <li>- I can construct products using permanent joining techniques.</li> <li>- I can make more complex electrical circuits and components that can be used to create functional products</li> <li>- I can reinforce and strengthen a 3D framework.</li> <li>- I can make mechanical and electrical systems.</li> <li>- I can use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT</li> </ul>
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### Evaluate

<ul style="list-style-type: none"> <li>- I can evaluate my work against my design criteria.</li> </ul>	<ul style="list-style-type: none"> <li>- I can evaluate my work against my design criteria.</li> <li>- I can look at a range of existing products explain what they like and dislike about products and why.</li> <li>- I can start to evaluate my products as they are developed, identifying strengths and possible changes they might make.</li> <li>- I can talk about my ideas, saying what they like and dislike about them.</li> </ul>	<ul style="list-style-type: none"> <li>- I can evaluate their products carrying out appropriate tests.</li> <li>- I can start to evaluate their work both during and at the end of the assignment.</li> <li>- I can disassemble and evaluate familiar products and consider the views of others to improve them.</li> <li>- I can evaluate the key designs of individuals in design and technology has helped shape the world.</li> </ul>	<ul style="list-style-type: none"> <li>- I can evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.</li> <li>- I can evaluate their work both during and at the end of the assignment.</li> <li>- I can record their evaluations using drawings with labels.</li> <li>- I can evaluate against their original criteria and suggest ways that their product could be improved.</li> <li>- I can evaluate the key designs of individuals in design and technology has helped shape the world.</li> </ul>
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### Vocabulary

Design, make, create, join	<b>Sliders and Leavers</b> slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria.	<b>2-D shape to 3-D product</b> fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative,	<b>Celebrating culture and seasonality</b> ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll
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	<p><b>Freestanding Structures</b> cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder product, function.</p> <p><b>Preparing Fruit and Vegetables</b> fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular,</p> <p><b>Templates and Joining</b> names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief,</p> <p><b>Wheels and Axels</b> vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism</p>	<p>investigate, label, drawing, aesthetics, function, pattern pieces.</p> <p><b>Healthy and varied diet</b> name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated, sensory evaluations.</p> <p><b>Levers and Linkages</b> mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p> <p><b>Shell Structures</b> shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype.</p>	<p>out, shape, sprinkle, crumble, design specification, innovative, research, evaluate, design brief.</p> <p><b>Combining different fabric shapes</b> seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype.</p> <p><b>Frame Structures</b> frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional.</p> <p><b>More complex switches</b> series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart, function, innovative, design specification, design brief, user, purpose.</p> <p><b>Pulleys or Gears</b> pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output, design, decisions, functionality,</p>
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	names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional		innovation, authentic, user, purpose, design specification, design brief.
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**Cultural Capital**

- Bridges (Ironbridge)	- Car design (Henry Ford) - Food groups (Jamie Oliver) - Healthy eating	- Torches (Thomas Edison)	- Bridges (London Millennium Footbridge) - Famous designers (Vivian Westwood)
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