

# Design Technology Curriculum: Progression Ladder

Nursery

Reception

## Early Years Foundation Stage

### Design Technology

<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>To handle, manipulate and enjoy using materials by stretching, pulling, twisting, squeezing.</li> <li>To explore different materials freely, in order to develop ideas about how to use them and what to make.</li> <li>To make simple representations of animals and people.</li> </ul>	<p><b>Media:</b></p> <ul style="list-style-type: none"> <li>play-dough</li> <li>construction</li> <li>sand</li> <li>clay</li> </ul> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>To know what materials can be used or twisted for a particular purpose.</li> </ul>	<p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>To safely handle, manipulate and enjoy using a variety of materials, tools and techniques.</li> <li>To make representations of animals or people using a 3D structure.</li> <li>To adapt and refine ideas.</li> <li>To use different techniques for joining.</li> <li>To use a variety of tools, including different size / shape of brushes and tools e.g. sponges, fingers, twigs.</li> </ul>	<p><b>Media:</b></p> <ul style="list-style-type: none"> <li>play-dough</li> <li>clay</li> <li>construction</li> <li>junk modelling</li> <li>natural materials</li> </ul> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>To know that materials can be manipulated to create new affects.</li> <li>To know which materials to use when joining (e.g glue, cellotape, masking tape, split pins)</li> <li>To know how to look at and talk about what they have produced, describing simple techniques and media used.</li> </ul>
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Year 1

Year 2

Year 3

Year 4

Year 5

Year 6

## Designing and Making

### Designing

<ul style="list-style-type: none"> <li>Begin to design functional and purposeful products based on a simple design brief.</li> <li>Generate, develop and communicate their ideas through talking and drawing.</li> <li>Begin to consider the audience and purpose for their product.</li> </ul>	<ul style="list-style-type: none"> <li>Design functional, purposeful and appealing products based on a simple design brief.</li> <li>Generate, develop, model and communicate their ideas through talking, drawing and making templates and mock ups.</li> <li>Use IT to plan products that they are designing.</li> <li>Consider the audience and purpose of their product in their design.</li> </ul>	<ul style="list-style-type: none"> <li>Identify the purpose and audience for their product.</li> <li>Begin to develop an understanding of design briefs and their purpose.</li> <li>Generate, develop, model and communicate their product using increasingly more formal sketches and annotations.</li> <li>Consider the order of construction and make simple plans for this.</li> <li>Begin to make suggestions on how we might begin the design process.</li> <li>Begin to use existing products to help inform the intended design.</li> <li>Begin to research and rehearse design techniques outlined in the technical progression</li> </ul>	<ul style="list-style-type: none"> <li>Identify the purpose and audience for their product.</li> <li>Begin to develop an understanding of design briefs and their purpose.</li> <li>Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams and prototypes.</li> <li>Identify from a range of planned ideas, which one will be taken forward.</li> <li>Plan the order of construction record simple step by step plans for this.</li> <li>Make suggestions on how we might begin the design process.</li> <li>Begin to use existing products to help inform the intended design.</li> <li>Research and rehearse design techniques outlined in the technical progression</li> <li>Begin to seek the views and opinions of the intended audience.</li> <li>Begin to identify where problems might arise and how we could overcome them.</li> </ul>	<ul style="list-style-type: none"> <li>Work collaboratively to plan and enhance their plans through discussion.</li> <li>Use design briefs to ensure that their plans meet a specified criteria.</li> <li>Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams, computer aided design and prototypes.</li> <li>Begin to draw up specifications for their design using increasingly more accurate specifications (e.g. millimetres, millilitres)</li> <li>Identify from a range of planned ideas, which one will be taken forward.</li> <li>Make further improvements, following discussion, to their final product – produce final designs.</li> <li>Plan the order of construction record simple step by step plans for this.</li> <li>Make suggestions on how we might begin the design process.</li> <li>Use existing products to help inform the intended design.</li> <li>Research and rehearse design techniques outlined in the technical progression</li> <li>Seek the views and opinions of the intended audience and reflect this in their product designs.</li> <li>Identify where problems in production will arise and plan for ways to overcome these.</li> <li>Consider how to ensure that their product is appealing and finished.</li> </ul>	<ul style="list-style-type: none"> <li>Work collaboratively to plan and enhance their plans through discussion.</li> <li>Use design briefs to ensure that their plans meet a specified criteria.</li> <li>Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams, computer aided design and prototypes.</li> <li>Produce specifications for their design using increasingly more accurate specifications/ measurements (e.g. millimetres, millilitres)</li> <li>Identify from a range of planned ideas, which one will be taken forward.</li> <li>Make further improvements, following discussion, to their final product – produce final designs.</li> <li>Plan the order of construction in detail, including identifying where challenges may arise.</li> <li>Make suggestions on how to begin the design process.</li> <li>Use existing products to inform the intended design.</li> <li>Research and rehearse design techniques outlined in the technical progression.</li> <li>Use technical skills proficiently.</li> <li>Seek the views and opinions of the intended audience and reflect this in their product designs.</li> <li>Identify where problems in production will arise and plan for ways to overcome these.</li> <li>Plan how to ensure that their product is appealing and finished well.</li> </ul>
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### Making: including using tools, joining techniques

<ul style="list-style-type: none"> <li>Attach wheels and axles using simple joining techniques.</li> <li>Select appropriate materials to use including construction materials and ingredients.</li> <li>Select appropriate simple tools to use perform simple tasks.</li> <li>Use simple techniques for cutting, shaping and joining the materials for their product.</li> <li>Explore a variety of techniques to cut, join and shape materials.</li> </ul>	<ul style="list-style-type: none"> <li>Attach wheels and axles using simple joining techniques.</li> <li>Use sewing needles to create a running stitch.</li> <li>Join two pieces of material together.</li> <li>Select appropriate materials to use including construction materials (cardboard, paper) and textiles.</li> <li>Select appropriate simple tools to use perform simple tasks.</li> <li>Use simple techniques for cutting, shaping, finishing and joining the materials for their product.</li> <li>Explore a variety of techniques to cut, join, finish and shape materials.</li> <li>Use cutting and joining techniques with a wider variety of materials.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to use planned specifications, using standard measurements.</li> <li>Begin to discuss a variety of joining technics beyond simple glues e.g. fasteners.</li> <li>Begin to follow intended plans in sequence.</li> <li>Follow intended plans in sequence and begin to discuss guidance from adults on how challenges may be overcome.</li> <li>Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on top a pizza.</li> <li>Use a growing range of techniques to shape materials e.g. slicing, chopping, cutting.</li> <li>Use a growing range of tools and utensils for shaping materials, including, pizza slices, simple knives, scissors.</li> <li>Begin to consider how much of each material/ ingredient will be needed.</li> </ul>	<ul style="list-style-type: none"> <li>Use sewing needles to create a cross stitch.</li> <li>Create patterns and designs using coloured thread.</li> <li>Use planned specifications, using standard measurements.</li> <li>Follow intended plans in sequence. Discuss with adults how challenges and problems could be overcome.</li> <li>Begin to make minor changes to plans to enhance the final product.</li> <li>Begin to make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joins and measurements.</li> <li>Use known electrical items (based on the science curriculum) to enhance their product and achieve the design brief.</li> <li>Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza.</li> <li>Use a growing range of techniques to shape materials e.g. slicing, chopping, cutting.</li> <li>Use a growing range of tools and utensils for shaping materials, including, pizza slices, simple knives, scissors.</li> <li>Begin to consider how much of each material/ ingredient will be needed.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to use planned specifications, using more detailed standard measurements.</li> <li>Follow detailed plans in sequence and begin to overcome hurdles as they arise independently by suggesting other solutions.</li> <li>Use more advanced tools for constructing with stronger materials, including drills, saws, clamps.</li> <li>Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles)</li> <li>Make appropriate changes to plans to enhance the final product.</li> <li>Make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joins and measurements.</li> <li>Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product.</li> <li>Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring.</li> <li>Use a wide range of tools and utensils to shape materials, including, saws, Stanlee knives, bread knives, hand held drills.</li> <li>Organise and collect adequate amounts of appropriate materials for their product.</li> </ul>	<ul style="list-style-type: none"> <li>Use sewing needles to create a zig zag stitch and ladder stitch.</li> <li>Join two pieces of fabric together using an 'invisible stitch'.</li> <li>Enhance textile products using 'filling' e.g. foam, cotton wool.</li> <li>Use planned specifications accurately, using more detailed standard measurements.</li> <li>Follow detailed plans in sequence and overcome hurdles as they arise independently, by finding other solutions.</li> <li>Use more advanced tools for constructing with stronger materials, including drills, saws, clamps.</li> <li>Create algorithms to program, monitor and control physical devices that children have created.</li> <li>Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles)</li> <li>Make appropriate changes to plans to enhance the final product.</li> <li>Use a wider variety of electrical items to enhance their product and achieve the design brief – robotics.</li> <li>Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product.</li> <li>Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring</li> <li>Use a wide range of tools and utensils to shape materials, including, saws, Stanlee knives, bread knives, hand held drills.</li> <li>Organise and collect adequate amounts of appropriate materials for their product.</li> </ul>
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## Design Technology Curriculum: Progression Ladder (continued)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Evaluation</b>	<ul style="list-style-type: none"> <li>Begin to explore a range of existing products, sharing their likes and dislikes.</li> <li>Say what they like and don't like about their products.</li> <li>Suggest ways that they could have made their product better.</li> </ul>	<ul style="list-style-type: none"> <li>Explore a range of existing products and evaluate these against their intended use and audience.</li> <li>Evaluate their products success against a simple design brief.</li> <li>Begin to evaluate their work taking into consideration the intended audience.</li> <li>Suggest ways that they could improve their product, relating this to the design brief and key technical knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate and analyse existing products and begin to evaluate them against the intended audience and purpose</li> <li>Begin to suggest improvements, that relate specifically to the design brief, to their products.</li> <li>Listen to the feedback of others.</li> <li>Begin to discuss how products they are studying have impacted on everyday lives.</li> <li>Begin to identify similarities and differences between their products and those of others.</li> <li>Make suggestions on how other's work could be improved.</li> <li>Identify the strengths in others work.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate and analyse existing products and evaluate them against the intended audience and purpose</li> <li>Suggest improvements, that relate specifically to the design brief, to their products.</li> <li>Listen to the feedback of others.</li> <li>Begin to discuss how products they are studying have impacted on everyday lives.</li> <li>Begin to identify similarities and differences between their products and those of others.</li> <li>Make suggestions on how other's work could be improved, beginning to link this to the design criteria.</li> <li>Identify the strengths in others work, beginning to link this to the design criteria.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate and analyse existing products, paying particular attention to design elements such as joining techniques, materials and technical knowledge.</li> <li>Draw on existing products to make decisions about their own products.</li> <li>Identify strengths and area for development in their product, suggesting ways it could be improved, taking into account the intended audience's feedback.</li> <li>Identify precise next steps that relate directly to the design criteria.</li> <li>Discuss in detail how some products and designers have impacted on people's lives, including industry.</li> <li>Compare and contrast their product with others, in relation to the design brief.</li> <li>Provide detailed and accurate feedback, that relates to the design criteria to others.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate and analyse existing products, paying particular attention to design elements such as joining techniques, materials and technical knowledge.</li> <li>Draw on existing products to make decisions about their own products.</li> <li>Identify strengths and area for development in their product, suggesting ways it could be improved, taking into account the intended audience's feedback.</li> <li>Identify precise next steps that relate directly to the design criteria.</li> <li>Discuss in detail how some products and designers have impacted on people's lives, including industry.</li> <li>Compare and contrast their product with others, in relation to the design brief.</li> <li>Provide detailed and accurate feedback, that relates to the design criteria to others.</li> </ul>
<b>Technical knowledge</b>	<ul style="list-style-type: none"> <li>Understand how a wheel and axle work.</li> <li>Know and recall where wheels and axles are used in everyday life.</li> <li>Simple joining techniques using cellotape, masking tap, Prit Stick, PVA, sewing.</li> <li>Understand how a product can be made stronger.</li> </ul>	<ul style="list-style-type: none"> <li>Understand how a wheel and axle work.</li> <li>Know and recall where wheels and axles are used in everyday life.</li> <li>Simple joining techniques using cellotape, masking tap, Prit Stick, PVA, sewing.</li> <li>Understand how a product can be made stronger, stiffer and more stable.</li> <li>Explore and use levers, sliders and dials.</li> <li>Use running stitch to attach two pieces of material together.</li> </ul>	<ul style="list-style-type: none"> <li>Understand how more complex levers and pulleys can make objects move.</li> <li>Explore how to include levers and pulleys in their designs.</li> <li>Identify ways to strengthen and reinforce more complex structures that include levers and pulleys.</li> <li>Understand how to use a wider range of linkage devices to construct more complex structures.</li> <li>Understand how to knead a dough.</li> </ul>	<ul style="list-style-type: none"> <li>Use cross stitch to create a product for a clear audience and purpose.</li> <li>Identify how to strengthen, stiffen and stabilise a product that has multiple tiers.</li> <li>Explore a widening variety of joining techniques, including: hinge, slot, flange and gusset.</li> <li>Use electrical items, including, buzzers, wires, cells and bulbs to create their product.</li> </ul>	<ul style="list-style-type: none"> <li>Understand how to gears can be used to create every day products that we use in our homes and lives.</li> <li>Identify how to strengthen, stiffen and stabilise more complex products, produced from a broadening range of materials (wood, Plastics)</li> <li>Prepare and cook hot products that require cooking via, roasting, boiling and baking.</li> </ul>	<ul style="list-style-type: none"> <li>Use zig zag and ladder stitch to create a product where the stitching is 'invisible'.</li> <li>Use more complex electrical items, including motors, wires, control panels and cells to produce a physical product.</li> <li>Use algorithms and computer programs to program, control and monitor an electrical, physical device.</li> <li>Use materials to enhance products for a purpose, for example: warmth, comfort.</li> </ul>
<b>Nutrition</b>	<ul style="list-style-type: none"> <li>Understand and discuss where common food comes from, including: milk, vegetables, milk, fish, fruit, yoghurt, butter, bread.</li> <li>Understand the term healthy.</li> <li>Identify and sort common foods into simple food groups.</li> <li>Begin to use simple food preparation techniques, such as chopping, mixing, combining, measuring.</li> <li>Understand the term seasonality.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to apply to the principles of a healthy and balanced diet to planned savoury dishes.</li> <li>Prepare and cook a savoury dish.</li> <li>Chop, grate, slice, shape, mix, combine, knead ingredients.</li> <li>Prepare bread dough and understand the role of kneading and resting in the process.</li> <li>Understand seasonality and how some ingredients are grown and reared in the UK.</li> <li>Begin to explore a widening range of ingredients, including (allergy appropriate): vegetables (peppers, onions, sweetcorn), meats and cheeses.</li> <li>Begin to understand the process for some foods and where they come from e.g. cheese originating from milk, or bread from wheat - to flour- to bread.</li> </ul>	<ul style="list-style-type: none"> <li>Chop, grate, slice, blend, mix, combine, knead, measure accurately ingredients.</li> <li>Understand the terms: blend, boil, mix, dissolve, grate, steam, bake, combine.</li> <li>Trial tasting and using a wider range of ingredients e.g. lentils.</li> <li>Understand the principles of a balanced diet. Develop quantities of ingredients to ensure balance of a meal.</li> <li>Understand the role of kneading in preparation of bread and how bread provides carbohydrates .</li> <li>Prepare and cook a savoury dish requiring a wider range of skills (soup)</li> <li>Use a widening range of standardised measure for capacity and mass.</li> <li>Understand seasonality of a wider range of ingredients and begin to understand the origin of some foods that are not in season in the UK.</li> <li>Understand that some ingredients are reared and grown both in the UK and abroad and this is how we have a year round supply of most foods.</li> <li>Begin to understand the term cross contamination and the need for separate food preparation techniques for different food groups.</li> </ul>			
<b>Safety</b>	<ul style="list-style-type: none"> <li>Use simple strategies to prepare cold foods safely, including: washing fruit and vegetables, washing hands and cleaning surfaces.</li> <li>Use simple tools safely, including, scissors and age-appropriate knives.</li> <li>Articulate how to keep themselves and others safe when working.</li> <li>Begin to identify potential dangers as they arise.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the importance of preparing a food preparation area.</li> <li>Identify ways to maintain personal hygiene before preparing and cooking food.</li> <li>Begin to identify, with adult support, how to operate an oven and handle hot equipment.</li> <li>Identify potential dangers before beginning a process and recognise dangers as they arise.</li> <li>Begin to use a wider range of cooking utensils, including: sharper knives, grates, spoons, mixing bowls,</li> <li>Begin to use a wider range of age-appropriate tools including knives.</li> <li>Identify ways that they can improve their own safety and that of others for a broadening range of situations in DT.</li> <li>Begin to prepare and use needles and sewing tools safely, with adult support.</li> </ul>	<ul style="list-style-type: none"> <li>Articulate, plan and use effective strategies to prepare an area for food preparation.</li> <li>Understand the importance of different chopping boards for different types of food to avoid cross contamination.</li> <li>Understand in depth the importance of personal hygiene when preparing food (hands, hair etc)</li> <li>Use a widening range of food preparation tools safely and independently (knives, graters, blenders, oven gloves).</li> <li>Identify potential dangers before beginning a process and recognise dangers as they arise, taking appropriate steps to maintain safety.</li> <li>Use heating appliances, with growing independence, safely.</li> <li>Use increasingly range of wood work tools safely, including saws, clamps, hand drills and sand paper.</li> <li>Formally plan safety procedures to ensure the safety of themselves and that of others when working with DT tools - put these into place independently.</li> <li>Begin to prepare and use needles and sewing tools safely, with adult support.</li> </ul>			