

## Curriculum Map for Design Technology

### Early Years

Statutory framework for the Early Years foundation stage: The most relevant statements for DT are taken from the following areas of learning:

- Physical Development
- Expressive Arts and Design
- Personal Social and Emotional Development

**Physical Development:** Physical activity is vital in children’s all-round development, enabling them to pursue happy, healthy and active lives. Gross and fine motor experiences develop incrementally throughout early childhood, starting with sensory explorations and the development of a child’s strength, co-ordination and positional awareness through tummy time, crawling and play movement with both objects and adults.

**Expressive Arts and Design** The development of children’s artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

**Personal, Social and Emotional development:** Children’s personal, social and emotional development (PSED) is crucial for children to lead healthy and happy lives, and is fundamental to their cognitive development. Underpinning their personal development are the important attachments that shape their social world. Strong, warm and supportive relationships with adults enable children to learn how to understand their own feelings and those of others.

<p><b>End Points Nursery:</b> PSED:</p> <ul style="list-style-type: none"> <li>• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.</li> </ul> <p><b>PD:</b></p> <ul style="list-style-type: none"> <li>• Use large-muscle movements to wave flags and streamers, paint and make marks.</li> <li>• Start taking part in some group activities which they make up for themselves, or in teams.</li> <li>• Choose the right resources to carry out their own plan.</li> <li>• Collaborate with others to manage large items, such as moving a long plank safely, carrying large hollow blocks.</li> <li>• Use one-handed tools and equipment, for example, making snips in paper with scissors. Use a comfortable grip with good control when holding pens and pencils. Show a preference for a dominant hand.</li> <li>• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons.</li> </ul> <p><b>EAD:</b></p> <ul style="list-style-type: none"> <li>• Take part in simple pretend play, using an object to represent something else even though they are not similar. Begin to develop complex stories using small world equipment like animal sets, dolls and dolls houses, etc. Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park.</li> <li>• Explore different materials freely, to develop their ideas about how to use them and what to make.</li> <li>• Develop their own ideas and then decide which materials to use to express them.</li> <li>• Join different materials and explore different textures.</li> </ul>	<p><b>End points Reception:</b> PSED:</p> <ul style="list-style-type: none"> <li>• Build constructive and respectful relationships.</li> <li>• Show resilience and perseverance in the face of challenge.</li> <li>• Think about the perspectives of others</li> </ul> <p><b>PD:</b></p> <ul style="list-style-type: none"> <li>• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons.</li> </ul> <p><b>EAD:</b></p> <ul style="list-style-type: none"> <li>• Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.</li> </ul> <p><u>Expressive Arts and Design ELG:</u> Creating with Materials Children at the expected level of development will: - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used.</p> <p><u>Physical Development ELG:</u> Gross Motor Skills Children at the expected level of development will: - Negotiate space and obstacles safely, with consideration for themselves and others;</p> <p><u>Fine Motor Skills ELG:</u> Children at the expected level of development will: - Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases; - Use a range of small tools, including scissors, paint brushes and cutlery; - Begin to show accuracy and care when drawing.</p>
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To support our play based learning in Early Years, our skilled Early Years teachers will identify and plan opportunities for all children to develop key knowledge and skills which will support them in successfully accessing the National Curriculum for Design Technology when they enter Year One. Using the Key Stage One and Two categories of **structures, mechanisms, textiles and food**, the key skills and knowledge are identified below:

Early Years	Structures (parts joined together)		Food		Mechanisms (parts working together)		Textiles	
	End Points Nursery	End Points Reception	End Points Nursery	End Points Reception	End Points Nursery	End Points Reception	End Points Nursery	End Points Reception
	Explore materials freely. Choose resources to help reach a planned goal. Use tools to cut chosen materials. Join materials choosing the method from given tools. Use large movements to paint structures as a finishing technique. Work as a team to build.	Select materials with reasons. Use selected tools to cut accurately and with control. Use selected tools and materials to join parts together. Think about how to solve problems and make changes to improve. Listen to the ideas of others. Show more thought for finish of the design using materials such as paint and colour with care.	Explore ingredients freely. Show development of fine motor skills to use knives, forks, spoons, cutters effectively and safely showing a dominant hand. Use tools to cut chosen materials safely. Understand safety around an oven and hob.	Select ingredients with reasons. Secure development of fine motor skills to use knives, forks, spoons, cutters effectively and safely showing a dominant hand. Use selected tools to cut accurately and safely. Follow a simple recipe independently.	Explore materials freely. Choose resources to help reach a planned goal. Use tools to cut chosen materials. Join materials choosing the method from given tools. Use large movements to paint the structure as a finishing technique. Work as a team to build. Collaborate with others to manage large items. Take part in imaginative play and create stories.	Select materials with reasons. Use selected tools to cut accurately. Think about how to solve problems and make changes to improve. Listen to the ideas of others. Show more thought for finish of the design using materials such as adding decoration. Negotiate space effectively.	Explore materials freely. Choose resources to help reach a planned goal. Use tools to cut chosen materials. Join materials choosing the method from given tools. Join different materials and explore different textures.	Select materials with reasons. Use selected tools to cut accurately. Think about how to solve problems and make changes to improve. Show more thought for finish of the design using materials such as adding decoration.
	<b>Key Vocabulary:</b> cut, join, soft, hard, weak, strong, bottom, top, thin, thick, corner, point, straight, curved, design, make, user, idea, tape, glue, staple, hammer, nail, wood, plastic, card, paper		<b>Key Vocabulary:</b> cut, mash, mix, spoon, whisk, grate, sift, melt, blend, chop, stir, sprinkle, cool, heat, fry, flip		<b>Key Vocabulary:</b> cut, join, bottom, thin, thick, corner, point, straight, curved, design, make, idea, stick, move, up, down, side to side, tape, glue, staple, tie, join		<b>Key Vocabulary:</b> cut, join, thin, thick, corner, tie, weave, fold, twist, design, make, idea, stick, decorate, tape, glue, staple.	

# Key Stage One

## National Curriculum:

When designing and making, pupils should be taught to:

Design –

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make –

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate -

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge –

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

Cooking and Nutrition -

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key Stage One	<p style="text-align: center;"><b>Structures</b></p> <p style="text-align: center;">Freestanding structures</p> <p>For example: We are designing, evaluating and making a seat for my bear.   Within 'Toys' history topic 'A chair for Baby Bear'</p>	<p style="text-align: center;"><b>Food</b></p> <p style="text-align: center;">Preparing fruit and vegetables and nutrition requirements for KS1</p> <p>For example: We are designing, evaluating and making a product to have at our school event   School events, national events</p>	<p style="text-align: center;"><b>Mechanisms</b></p> <p style="text-align: center;">Wheels and axles</p> <p>For example: We are designing, evaluating and making a vehicle for an explorer.   Within 'Ready for Anything' history topic</p>
	<p><b>End points</b></p> <p>Know what a structure is.            Look at and investigate <b>structures</b> in our environment.            Know how to make structures strong and <b>stable</b>, using <b>construction</b> kits for ideas.            Know how to place bricks to make a wall <b>strong</b>.            Know to use a wider or heavier <b>base</b> to make a structure more <b>stable</b>.            How to <b>join</b> sheet materials and boxes together using tape or glue.            Choose <b>materials</b> to give <b>strength</b> and <b>stability</b>.            Know that <b>free standing structures</b> need to be <b>balanced</b> to stand.            Explain how well my product works for the user and purpose.</p>	<p>Know that <b>food</b> comes from <b>plants</b> or <b>animals</b> and that it is <b>farmed</b> or <b>caught</b>.            Know that fruit and vegetables are part of the '<b>eat-well plate</b>'.            Name common <b>fruit</b> and <b>vegetables</b> recognising and describing <b>appearance</b>, <b>taste</b> and <b>smell</b>.            Cut soft fruit and vegetables using appropriate <b>utensils</b> safely.            Design a product for a particular user using their preferences.            Select from a range of fruit and vegetables according to their characteristics e.g. <b>colour</b>, <b>texture</b> and <b>taste</b> to create a chosen product.            Show thought about the finish of the product to entice the user.            Explain how well my product works for the user.</p>	<p>Know what an <b>axle</b> is.            Know the difference between <b>fixed</b> and <b>freely moving</b> axles.            Use vehicles around me to understand how they move and get ideas.  <b>Cut and drill materials</b> I need safely.            Know how to make a fixed axle.            Know how to make a moving axle.            Use <b>mock ups</b> to try <b>mechanisms</b> out and make sure movement is possible.            Choose materials because of their <b>properties</b> and to achieve a good finish.            Make a vehicle move on <b>wheels</b> successfully using mechanisms.            Explain how well my product works for the user.</p>
	<p><b>Key Vocabulary:</b>            cut, fold, join, fix, structure, wall, tower, framework, weak, strong, stable, buttress, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>	<p><b>Key Vocabulary:</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, design, evaluate, criteria</p>	<p><b>Key Vocabulary:</b>            vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional</p>
	<p style="text-align: center;"><b>Mechanisms</b></p> <p style="text-align: center;">Sliders and levers</p> <p>For example: We are designing, evaluating and making a class moving picture book to tell the story of the Great Fire of London.   Within 'Ring o' Ring o' Roses history topic</p>	<p style="text-align: center;"><b>Food</b></p> <p style="text-align: center;">Preparing fruit and vegetables and nutrition requirements for KS1</p> <p>For example: We are designing, evaluating and making a product to have at our school event   School events, national events</p>	<p style="text-align: center;"><b>Textiles</b></p> <p style="text-align: center;">Templates and joining techniques</p> <p>For example: We are designing, evaluating and making pouches to keep a medal protected.   Within 'Super heroes don't always wear capes' history topic</p>
<p><b>End points</b></p> <p>Know what a <b>mechanism</b> is.            Use mechanisms around me to understand them and get ideas.            Know that mechanisms can make different <b>movements</b>.            Know what a <b>slider</b> is.            Know what a <b>lever</b> is.            Identify the <b>output</b> and <b>input</b>.            Plan a design to use at least one slider and one lever choosing the mechanism for the movement.            Use <b>mock ups</b> to try mechanisms out.            Successfully make and use at least one lever and one slider.            Explain how well my product works for the user.</p>	<p>Know that <b>food</b> comes from <b>plants</b> or <b>animals</b> and that it is <b>farmed</b> or <b>caught</b>.            Know that fruit and vegetables are part of the '<b>eat-well plate</b>'.            Name common <b>fruit</b> and <b>vegetables</b> recognising and describing <b>appearance</b>, <b>taste</b> and <b>smell</b>.            Cut soft fruit and vegetables using appropriate <b>utensils</b> safely.            Design a product for a particular user using their preferences.            Select from a range of fruit and vegetables according to their characteristics e.g. <b>colour</b>, <b>texture</b> and <b>taste</b> to create a chosen product.            Show thought about the finish of the product to entice the user.            Explain how well my product works for the user.</p>	<p>Explore <b>textiles</b> and their uses around me.            Investigate joining <b>fabrics</b> e.g. <b>running stitch</b>, <b>glue</b>, <b>over stitch</b>, <b>stapling</b>.            Design a functional and appealing product for a chosen user and purpose based on simple design criteria.            Choose and use a range of tools and equipment to perform practical tasks such as <b>marking out</b>, <b>cutting</b>, <b>joining</b> and <b>finishing</b>.            Choose from and use <b>textiles</b> according to their characteristics.            Understand how to make a simple <b>3-D textile product</b> using a <b>template</b> to create two identical <b>shapes</b> to join.            Use different <b>finishing techniques</b> e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.</p>	
<p><b>Key Vocabulary:</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, product, function</p>	<p><b>Key Vocabulary:</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, design, evaluate, criteria</p>	<p><b>Key Vocabulary:</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, design criteria, make, evaluate, user, purpose, function</p>	

# Key Stage Two

## National Curriculum:

When designing and making, pupils should be taught to:

Design -

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make-

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate –

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world




Technical knowledge -

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition -

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

The units of work below have been selected in consultation with the Design Technology Association as aspects of DT best taught at lower Key Stage Two to support transition to the DT curriculum taught in Year 5 and 6.

Key Stage Two	A Year	<b>Textiles</b> 2-D shape to a 3-D product For example: We are designing, evaluating and making a Loculus or Roman satchel or marching pack  Within 'Go out and Conquer' History topic	<b>Food</b> Healthy and varied diet (including cooking and nutrition requirements for KS2) For example: We are designing, evaluating and making a product to have at our school event School events, national events 	<b>Electrical systems</b> Simple circuits and switches For example: We are designing, evaluating and making a night light for a chosen user.  Within 'Electricity' Science topic
	End points	Creates a list of likes and dislikes of the user. Investigate a range of 3-D <b>textile</b> products relevant to the project. Create <b>templates</b> and <b>mock ups</b> to try ideas as a <b>prototype</b> . Selects <b>fabrics</b> and <b>fastenings</b> according to their function e.g. <b>strength</b> , and <b>aesthetic</b> qualities e.g. <b>pattern</b> . Describe what influenced the design of the product. Secure use of a range of <b>stitches</b> including: <b>back stitch, backward running stitch, over sew stitch, blanket stitch, running stitch</b> . Include a <b>seam</b> and <b>seam allowance</b> . Include <b>decorative techniques</b> to suit the user and purpose. Can explain how suitable adjustments during the process were made and plans changed. Evaluate my own products and ideas against criteria and user needs.	Know how the Eat-well plate can help their planning decisions. Know how to use equipment safely to prepare and <b>combine</b> food for the product. Know about a range of <b>fresh</b> and <b>processed</b> ingredients appropriate for their product, and whether they are <b>grown, reared</b> or <b>caught</b> . Develop design criteria including <b>appearance, taste, texture</b> and <b>aroma</b> for an appealing product for a particular user and purpose. Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. Plan the main stages of a <b>recipe</b> , listing <b>ingredients, utensils</b> and <b>equipment</b> . Select from a range of ingredients to make appropriate food products, thinking about <b>sensory characteristics</b> . Carry out <b>sensory evaluations</b> of a variety of ingredients and products. Record the <b>evaluations</b> using e.g. tables and simple graphs. <b>Evaluate</b> the ongoing work and the final product with reference to the design criteria and the views of others.	Know what an <b>electrical system</b> is. Know where electrical systems are around me. Investigate and analyse a range of existing <b>battery-powered</b> products. Identify <b>inputs</b> and <b>outputs</b> on devices. Know how to test components for an electrical system. How to build and use an electrical system in a design. Order the main stages of making. Select from and use tools and equipment to <b>cut, shape, join and finish with some accuracy</b> . Select from and use materials and parts, including construction materials and <b>electrical components</b> according to their function and finish matched to the purpose and user. Evaluate my ideas and products against my own design criteria and identify the strengths and areas for improvement.
		<b>Key Vocabulary:</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, investigate, label, drawing, aesthetics, function, pattern pieces	<b>Key Vocabulary:</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 sketch, sensory evaluations.	<b>Key Vocabulary:</b> series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function, prototype, design criteria, innovative, appealing, design brief
	B Year	<b>Mechanical Systems</b> Levers and Linkages For example: We are designing, evaluating and making a story board to story tell Beowulf to an audience.  Within 'Vicious Vikings' History topic	<b>Food</b> Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) For example: We are designing, evaluating and making a product to have at our school event School events, national events 	<b>Structures</b> Shell structures (including computer –aided design) For example: We are designing, evaluating and making a box to store and play the game of senet.  Within 'Walk like an Egyptian' History topic
	End points	Use annotated sketches and <b>prototypes</b> to develop, model and communicate ideas. Know how to <b>join levers</b> to make a <b>linkage</b> .	Know how the Eat-well plate can help their planning decisions. Know how to use equipment safely to prepare and <b>combine</b> food for the product. Know about a range of <b>fresh</b> and <b>processed</b> ingredients	<b>Analyse</b> existing products, sketch and create <b>prototypes</b> to model and share ideas.

	<p>Know how to make a <b>mechanical system</b>.  Identify and use <b>fixed</b> and <b>loose pivots</b>.  Recognise and <b>create movements</b> which are <b>linear, rotary, sliding and oscillating</b>.  Plan a design to use a mechanical system using a variety of movements suiting the purpose and fixed and loose pivots.  Use <b>finishing techniques</b> suitable for the product I am creating.  Evaluate my own products and ideas against criteria and user needs.</p>	<p>appropriate for product, and whether are <b>grown, reared</b> or <b>caught</b>.  Develop design criteria including <b>appearance, taste, texture</b> and <b>aroma</b> for an appealing product for a particular user and purpose.  Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.  Plan the main stages of a <b>recipe</b>, listing <b>ingredients, utensils</b> and <b>equipment</b>.  Select from a range of ingredients to make appropriate food products, thinking about <b>sensory characteristics</b>.  Carry out sensory evaluations of a variety of ingredients and products. Record the <b>evaluations</b> using e.g. tables and simple graphs.  <b>Evaluate</b> the ongoing work and the final product with reference to the design criteria and the views of others.</p>	<p>Create <b>3D shapes</b> using <b>nets</b>.  Score <b>sheet materials</b> to fold with ease.  Know how to <b>strengthen</b> sheet materials.  Select and use appropriate <b>tools to measure, mark out, cut, score, shape</b> and <b>assemble</b> with some accuracy.  Know what will be the <b>purpose</b> of the product is.  Use <b>Purple Mash 2 Design and Make</b>.  Plan how my product will appeal to my intended user.  Identify the main stages of the process.  Test and evaluate my own product against design criteria and the intended user and purpose.</p>
	<p><b>Key Vocabulary:</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>Key Vocabulary:</b>  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 out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief</p>	<p><b>Key Vocabulary:</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>