



Opportunities for D&T in the Early Years Foundation Stage Framework 2021

<p>There are opportunities for D&T engagement across all seven areas of learning in the Early Years.</p>	<p>Communication and Language</p> <p><u>3- and 4-year olds will be learning to:</u> Use a wider range of vocabulary. Understand 'why' questions.</p> <p><u>Children in Reception will be learning to:</u> Learn new vocabulary. Ask questions to find out more and to check they understand what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Engage in non-fiction texts.</p>	<p>Personal, Social and Emotional Development</p> <p><u>3- and 4-year olds will be learning to:</u> 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. Make healthy choices about food, drink, activity and toothbrushing.</p> <p><u>Children in Reception will be learning to:</u> Show resilience and perseverance in the face of challenge. Manage their own needs. Know and talk about the different factors that support their overall health and wellbeing.</p>	<p>Physical development</p> <p><u>3- and 4-year olds will be learning to:</u> Choose the right resources to carry out their own plan. Use one-handed tools and equipment.</p> <p><u>Children in Reception will be learning to:</u> Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</p>
<p>Literacy</p>	<p>Mathematics</p>	<p>Understanding the World</p>	<p>Expressive Arts and Design</p>
<p><u>3- and 4-year olds will be learning to:</u> Use some of their print and letter knowledge in their early writing.</p> <p><u>Children in Reception will be learning to:</u> Spell words by identifying the sounds and then writing the sound with letter/s.</p>	<p><u>3- and 4-year olds will be learning to:</u> Talk about and explore 2D and 3D shapes. Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Combine shapes to make new ones - an arch, a bigger triangle etc. Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper.</p> <p><u>Children in Reception will be learning to:</u> Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. Continue, copy and create repeating patterns. Compare length, weight and capacity.</p>	<p><u>3- and 4-year olds will be learning to:</u> Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Explore how things work. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice.</p> <p><u>Children in Reception will be learning to:</u> Explore the natural world around them.</p>	<p><u>3- and 4-year olds will be learning to:</u> Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. Join different materials and explore different textures.</p> <p><u>Children in Reception will be learning to:</u> Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.</p>



Key stage 1 National Curriculum requirements:	Key stage 2 National Curriculum requirements:
<p>When designing and making, pupils should be taught to:</p> <p><u>Design</u></p> <ul style="list-style-type: none"> ☑ 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. <p><u>Make</u></p> <ul style="list-style-type: none"> ☑ 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 <p><u>Evaluate</u></p> <ul style="list-style-type: none"> ☑ explore and evaluate a range of existing products ☑ evaluate their ideas and products against design criteria <p><u>Technical knowledge</u></p> <ul style="list-style-type: none"> ☑ 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. <p><u>Cooking and nutrition</u></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ☑ use the basic principles of a healthy and varied diet to prepare dishes ☑ understand where food comes from. 	<p>When designing and making, pupils should be taught to:</p> <p><u>Design</u></p> <ul style="list-style-type: none"> ☑ 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 <p><u>Make</u></p> <ul style="list-style-type: none"> ☑ 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 <p><u>Evaluate</u></p> <ul style="list-style-type: none"> ☑ 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 <p><u>Technical knowledge</u></p> <ul style="list-style-type: none"> ☑ 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 of circuits incorporating switches, bulbs, buzzers and motors] ☑ apply their understanding of computing to program, monitor and control their products. <p><u>Cooking and nutrition</u></p> <ul style="list-style-type: none"> ☑ 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.



Early Years- Year 6							
	Foundation Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understanding contexts, users and purposes	Say who a product is being made for.	State what products they are designing and making. Explain how they will make a product. Describe what their products are for. Say whether their products are for themselves or other users.	Use simple design criteria to help develop their ideas. Say how their products will work. Say how they will make products suitable for intended users.	Develop their own design criteria. Describe the purpose of their product. Gather information about the wants of particular individuals and groups.	Develop their own design criteria and use this to inform their ideas. Explain how particular parts of their products work. Gather information about the wants and needs of particular individuals and groups.	Indicate the design features of their products that will appeal to intended users. Explain how particular parts of their products work. Identify the needs, wants and preferences of particular individuals and groups. Carry out research, using surveys, interviews and questionnaires.	Develop a simple design specification to guide their thinking. Describe the purpose of their products. Identify the needs, wants, preferences and values of particular individuals and groups. Carry out research, using surveys, interviews and questionnaires and web-based resources to inform design.
Generating, developing, modelling and communicating ideas	Generate ideas for products by drawing on their own experiences. Talk about their ideas for a product. Model ideas by exploring construction kits and using paper and card.	Begin to draw on their own experience to help generate ideas. Use knowledge of existing products to come up with ideas. Begin to develop and communicate their ideas by talking and drawing. Model their ideas by exploring materials, construction kits and using paper and card.	Generate ideas by drawing on their own & other people's experiences. Identify a purpose for what they intend to design and make. Make simple drawings and label parts to communicate their ideas. Model their ideas by exploring materials, components and construction kits and by making templates and mock-ups. Use ICT, where appropriate, to develop and communicate ideas.	Begin to generate realistic ideas that focus on the needs of the user. Share and clarify their ideas in discussions. Develop and communicate their ideas through annotated sketches and cross-sectional diagrams. Model their ideas using prototypes. Begin to make design decisions that take account of the availability of resources.	Generate realistic ideas, considering the needs of the user and the purpose for which they are designing. Develop and communicate ideas through annotated sketches and cross-sectional drawings and exploded diagrams. Model their ideas using prototypes and pattern pieces. Order the main stages of making. Make design decisions that take account of the availability of resources. Begin to use computer-aided design to develop and communicate ideas.	Generate innovative ideas after collecting information from different sources. Develop and communicate ideas through annotated sketches and cross-sectional drawings and exploded diagrams which show specific features. Model their ideas using prototypes and pattern pieces. Develop a clear idea of what has to be done, by producing a detailed step by step plan. Explain how a product will appeal to a specific audience. Use computer-aided design to develop and communicate ideas.	Generate innovative ideas which draw on research. Develop and communicate ideas through detailed, annotated sketches and cross-sectional drawings and exploded diagrams which show specific features. Follow and refine original plans as the need arises. Justify planning in a convincing way. Model their ideas using prototypes and pattern pieces. Show that culture and society is considered in plans and designs. Make design decisions which take account of constraints, such as time, resources and cost.



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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Technical knowledge Working with tools, equipment, materials and components to make quality products</p>	<p>Be able to use one-handed tools and equipment safely and competently, e.g. use scissors to create snips in paper, hole punch.</p> <p>Explore and use components to join two materials, e.g. tape, glue, staple.</p> <p>Manipulate and join shapes and construction kit components to build.</p> <p>Know how to join a thin surface to a flat one by splaying out edges. (flange, fold)</p>	<p>Explore and use mechanisms (levers and sliders) in products. Know, and talk about the movement of simple mechanisms (levers and sliders). Understand that different mechanisms produce different types of movement.</p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable. Know about the work of the famous engineer Isambard Kingdom Brunel who was responsible for the design of tunnels and bridges in UK.</p> <p>Know about the simple working characteristics of materials and components.</p> <p>Select from a range of tools and equipment. Use one-handed tools safely, e.g. scissors, hole punch, stapler.</p>	<p>Explore and use mechanisms (wheels, axles and axle holders) in their products. Know, and talk about the movement of simple mechanisms (wheels and axles). Distinguish between fixed and freely moving axles. Use simple methods to fix wheels and axles to a product. Know about the work of Robert William Thomson and John-Boyd Dunlop who invented the pneumatic tyre.</p> <p>Cut, shape and join fabric to make a simple product. Know that a 3-D textiles product can be assembled from two identical fabric shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, stapling.</p> <p>Use their knowledge of the simple working characteristics of materials and components when making products.</p>	<p>Know how to make strong, stiff shell structures. Know how to use learning from mathematics to help design and make products that work. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</p> <p>Know that a single fabric shape can be used to make a 3D textiles product. Understand how to securely join two pieces of fabric together using appropriate stitching. E.g. running stitch, backstitch. Select the most appropriate techniques to decorate textiles. Know how to strengthen, stiffen and reinforce existing fabrics.</p>	<p>Know how pneumatic systems create movement. Select from and use appropriate tools with accuracy to cut and join materials and components such as tubing, syringes and balloons. Know about the work of American inventor Alfred Ely Beach who created the first subway where trains were propelled by pneumatics, not steam or Know about the work of Scottish inventor William Murdoch who invented a pneumatic tube message system.</p> <p>Know how simple electrical circuits and components can be used to create functional products. Understand and use electrical systems in their products, such as series circuits incorporating switches and bulbs. Know that electrical systems have an input, process and output. Know how to program a computer to control their products. Know how to use learning from Science to</p>	<p>Know how mechanical systems such as cams or pulleys or gears create movement. Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know how to use learning from Science to help design and make products that work.</p> <p>Know about inventors who have developed ground-breaking products. Mr. de Mestral who invented Velcro. Know that a 3D textiles product can be made from a combination of fabric shapes and different fabrics. Know that fabrics can be strengthened, stiffened and reinforced where appropriate. Join textiles with a combination of stitching techniques (such as backstitch or blanket stitch for seams and running stitch to attach decoration).</p>	<p>Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know what methods of construction have been used in existing products. Know that materials can be combined and mixed to create more useful characteristics. Talk about how engineers solve complex problems. Know about the work of engineers who have overcome structural problems. E.g. Isambard K-B, Gustave Eiffel, Peter Rice, Falzur Khan.</p> <p>Investigate famous inventors who developed ground-breaking electrical systems and components. Charles Fritz-solar energy, Charles Brush-wind power, William Armstrong & Joseph Wilson Swan-incandescent light bulb. Know how to use learning from Science to help design and make products that work. Know how more complex electrical circuits and components can be used to create functional products. Understand and use electrical systems in their products.</p>
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Early Years- Year 6							
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					help design and make products that work. Know about the work of Thomas Edison , who was responsible for developing many devices, and understand the impact he has made or John Peake Knight -inventor of the first traffic light.		



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<p style="writing-mode: vertical-rl; transform: rotate(180deg);"> Technical knowledge Working with tools, equipment, materials and components to make quality products </p>		<p>Assemble, join and combine materials and components together using a variety of methods, e.g. glues or masking tape.</p> <p>Know how to use flange, fold, slot, tab and tab/slot to join components.</p> <p>Use a range of materials and components, including construction materials and kits, food ingredients and mechanical components in their products.</p> <p>Explore simple finishing techniques to begin to improve the appearance of their product.</p>	<p>Select from a range of tools and equipment, explaining their choices.</p> <p>Use tools confidently, including scissors, hole punch, stapler and follow procedures for safety and hygiene.</p> <p>Assemble, join and combine a range of materials and components together using a wider variety of methods, e.g. glue, tape, staple, sew.</p> <p>Measure, mark out, cut and shape materials and components with some accuracy.</p> <p>Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components in their products.</p> <p>Choose and use appropriate finishing techniques, based on own ideas.</p>	<p>Select fabrics and fastenings according to their functional characteristics, e.g. strength and aesthetic qualities.</p> <p>Know about the work of Milliner Rachel Trevor Morgan.</p> <p>Select and use the most appropriate tools and techniques for a given task.</p> <p>Work with increased accuracy to measure, mark out, cut, score, shape and assemble materials.</p> <p>Explain their choice of materials according to functional properties and aesthetic qualities.</p> <p>Apply a range of finishing techniques to improve the appearance of a product, including those from art and design.</p>	<p>Know how to use learning from mathematics to help design and make products that work.</p> <p>Know which tools to use for a particular task and show good handling of tools.</p> <p>Work accurately to measure, mark out, cut, score, shape and assemble materials.</p> <p>Know which material is likely to give the best outcome.</p> <p>Select from and use finishing techniques suitable for the product they are creating.</p>	<p>Know how the work of key designers influenced textile products. E.g. Lucienne Grey, William Morris, Cath Kidston.</p> <p>Know how to use learning from mathematics to help design and make products that work.</p> <p>Select from and use a wider range of tools and equipment safely, including CAD, to make products that are accurately assembled and well finished.</p> <p>Know that materials have both functional properties and aesthetic qualities and justify their choice of materials for products.</p> <p>Demonstrate resourcefulness when tackling practical problems.</p>	<p>Apply their understanding of computing to program, monitor and control their products.</p> <p>Know how to test an electrical system to demonstrate its effectiveness for the intended user and purpose.</p> <p>Know which tool to use for a specific practical task and use all tools safely and competently, including junior hacksaws, G-clamps and hand drills.</p> <p>Use techniques that involve a number of steps.</p> <p>Accurately measure, mark out, cut, shape assemble, join and combine materials and components to make working models and achieve a quality product.</p> <p>Demonstrate resourcefulness when tackling practical problems and use own knowledge to make modifications to a product.</p>



Early Years- Year 6							
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Cooking and nutrition	<p>Identify different fruit and vegetables.</p> <p>Talk about likes and dislikes when tasting food.</p> <p>Begin to understand healthy food choices.</p> <p>Know that some fruit and vegetables must be washed in preparation for eating.</p> <p>Peel skin from fruit.</p> <p>Pick fruit from a vine.</p> <p>Cut soft food with a knife, using a fork to secure it.</p>	<p>Understand that fruit and vegetables come from plants and are grown.</p> <p>Know that everyone should eat at least five portions of fruit and vegetables every day.</p> <p>Follow food safety and hygiene rules.</p> <p>Prepare fruit safely by washing, peeling using hands, chopping using a fork to secure food or claw method, grating, hulling, picking fruit from a vine and arranging ingredients.</p>	<p>Know that all food comes from plants or animals and has to be farmed, grown elsewhere, or caught.</p> <p>Name and sort foods into the five groups in the Eatwell Guide.</p> <p>Know how to prepare simple dishes safely and hygienically, without using a heat source.</p> <p>Use tools safely and techniques such as spreading, cutting (using a fork to secure food), claw or bridge method, peeling using a swivel peeler, grating hard/soft food.</p> <p>Assemble ingredients into a product.</p>	<p>Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell Guide.</p> <p>Know that to be active and healthy, food and drink are needed to provide energy for the body.</p> <p>Prepare a savoury dish safely and hygienically using appropriate utensils.</p> <p>Use juicer, garlic press, grate firmer foods, cut medium resistance foods into evenly sliced parts using bridge or claw method, snip/shred leaves, peel, spread, mix.</p> <p>Understand how a key chef, Diane Kochilas, has influenced eating habits to promote varied and healthy diets.</p>	<p>Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>Begin to understand appropriate portion sizes for regular meals and healthy snacks.</p> <p>Know that food ingredients can be fresh, pre-cooked and processed.</p> <p>Know how to prepare and cook a savoury dish safely and hygienically, including the use of a heat source.</p> <p>Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Begin to measure ingredients to the nearest gram accurately.</p> <p>Understand how a key chef, Jamie Oliver, has contributed to healthy eating in schools.</p>	<p>Understand about seasonality in relation to food products and the source of different food products.</p> <p>Know that different food and drink contain different substances, nutrients, water and fibre that are needed for health.</p> <p>Know how food is processed into ingredients that can be eaten or used in cooking.</p> <p>Know how to control the temperature of a heat source when cooking.</p> <p>Know that a recipe can be adapted by adding or substituting one or more ingredients.</p> <p>Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, rubbing and baking.</p> <p>Measure ingredients to the nearest gram accurately.</p> <p>Identify key chefs, Roy Choi, Daniel Patterson, that have created healthy, convenient and affordable food.</p>	<p>Understand seasonality, & know where & how a variety of ingredients are grown, reared, caught & processed.</p> <p>Understand some of the ethical dilemmas associated with the food people choose to buy.</p> <p>Understand how a key chef, Dan Barber, has tried to impact the food industry. 'Farm to table' movement.</p> <p>Know that recipes can be adapted to change the appearance, taste, texture and aroma.</p> <p>Know how to prepare and cook savoury dishes safely and hygienically, including the use of a heat source.</p> <p>Measure accurately & calculate ratios of ingredients to scale up or down from a recipe.</p> <p>Know when to adjust the cooking time and temperature of a heat source when cooking.</p>



Early Years- Year 6

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Evaluating processes and products	<p><u>Own ideas and products:</u> Talk about their design ideas and what they are making.</p> <p><u>Existing products:</u> Talk about what they think products are. Talk about who they think products are for and what they are for. Talk about likes and dislikes in relation to existing products.</p>	<p><u>Own ideas and products:</u> Talk about their design ideas and what they are making. Make simple judgements about their product. Evaluate their product by identifying strengths and possible changes they could make.</p> <p><u>Existing products:</u> Identify what products are. Identify what products are for, who they are for and how they work. Identify some of the materials used in existing products. Identify what they like and dislike about existing products.</p>	<p><u>Own ideas and products:</u> Talk about their design ideas, what they are making and how a product will work. Make simple judgements about their product against the design criteria. Evaluate their product by identifying strengths and how it could be improved.</p> <p><u>Existing products:</u> Identify what the intended use of a product is and who the intended user is. Identify where and how products might be used. Know what materials products are made from and how they work.</p>	<p><u>Own ideas and products:</u> Identify the strengths and areas for development in their ideas and products. Refer to their design criteria as they design and make. Use their design criteria to evaluate their completed products. Know why a product has, or has not, been successful.</p> <p><u>Existing products:</u> Investigate and analyse how well products have been designed and made and how well they work. Investigate who designed and made products. Investigate where and when products were designed and made. Identify whether products can be recycled or reused.</p>	<p><u>Own ideas and products:</u> Identify the strengths and areas for development at different stages of their work in order to improve their ideas and products. Begin to consider the views of others, including intended users, to improve their work. Refer to, and develop their design criteria as they design and make. Use their design criteria to evaluate their completed products and express the extent to which the criteria have been met.</p> <p><u>Existing products:</u> Investigate and analyse how well products have been designed and made. Explain how well products work and achieve their purposes. Investigate who designed and made products. Investigate where and when products were designed and made. Investigate why materials have been chosen.</p>	<p><u>Own ideas and products:</u> Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make. Consider the views of others, including intended users, to make relevant improvements to their work.</p> <p><u>Existing products:</u> Investigate and analyse how well products have been designed and made and how well they work. Analyse why materials have been chosen and how sustainable the materials in products are. Explain to what extent products achieve their purpose and how well they meet user needs and wants. Investigate who designed and made products. Investigate where and when products were designed and made.</p>	<p><u>Own ideas and products:</u> Evaluate their ideas and products against their original design specification. Investigate and analyse their products by carrying out tests and identifying strengths and areas for development.</p> <p><u>Existing products:</u> Investigate and analyse what methods of construction have been used. Investigate how much products cost to make. Investigate and analyse how innovative products are. Know how sustainable the materials in products are. Investigate what impact products have beyond their intended purpose. Investigate who designed and made products. Investigate where and when products were designed and made.</p>