Millbrook Primary School Layer 2: D&T Skills and Knowledge Progression

		Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Every Term	Knowledge	To know the stages of making a product. To know how to represent an idea e.g. through talk or a drawing. To know how to explore a range of materials. To know that improvements can be made to a product.	To know how to develop and communicate ideas through talk, drawings and mock ups. To know how to use simple design criteria. To know how to generate initial ideas through own experiences. To know how to explore and evaluate a range of products to determine the intended user's preferences for the product. To know how to evaluate their ideas throughout and finished products against design criteria, including intended user and purpose.	To know how to develop, model and communicate their ideas through talking, mock ups and drawings. To know how to use simple design criteria. To know how to generate ideas based on own experiences, explaining what they could make, thinking about the specific user. To know how to plan by suggesting what to do next. To know to explore a range of existing products related to their design criteria. To know how to evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.	To know how to use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology such as web-based recipes, to develop and communicate ideas. To know how to use realistic design criteria. To know how to generate realistic ideas through discussion and design for appealing, functional products fit for purpose and specific users. To know how to plan the main stages of making. To know how to test their product. To know how to investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. To know how to evaluate the ongoing work and the final product with reference to the design criteria and views of others.	To know how to use annotated sketches and appropriate information technology, such as web-based recipes, to develop and communicate ideas. To know how to generate, develop, model and communicate ideas through discussion and as appropriate, annotated sketches, cross-sectional and exploded diagrams. To know how to and develop realistic design criteria to inform design of products that are fit for purpose. To know how to generate and clarify ideas through discussion with peers and design products that are fit for purpose and aimed at particular individuals or groups. To know how to order the main stages of making. To know how to test and evaluate their own products. To know how to investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. To know how to evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	To know how to use discussion, annotated drawings, exploded drawings and drawings from different views and where appropriate computer-aided design to develop and communicate ideas. To know how to and develop realistic design criteria and brief for a design specification. To know how to generate innovative ideas through research including surveys, interviews and questionnaires and discussion with peers. To know how to design purposeful, functional, appealing products for the intended user that are fit for purpose. To know how to produce detailed lists of equipment and fabrics relevant to their tasks. To know how to write a step-by-step plan, including a list of resources required. To know how to test products and critically evaluate the fitness for purpose. To know to consider the view of others to improve their work. To know how to investigate and analyse products linked to their final product. To know how to compare the final product to the original design specification and record the evaluations.	To know how to use annotated sketches, pictorial representations of electrical circuits or circuit diagrams to develop and communicate their ideas. To know how to generate and develop innovative ideas and share and clarify these through discussion. To know how to and develop realistic design criteria and specification to guide their development of their ideas and products, taking account of constraints including time, resources and cost. To know how to generate innovative ideas through research including surveys, interviews, questionnaires and web-based resources to develop a design specification for a range of functional products. To know how to produce detailed lists of equipment and fabrics relevant to their tasks explaining their uses To know how to formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. To know how to test the system to demonstrate the effectiveness. To know how to investigate and analyse products lined to their final product. To know how to continually evaluate and modify the working features of the product to match the initial design specification. To know how to critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development.
	Skills	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Develop storylines in their pretend play. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.			To test the product against the original design criteria and with the intended user.	To test and evaluate their own products against the design criteria and the intended user and purpose.	To test the products and critically evaluate the quality of design, manufacture, functionality and fitness for purpose.	To test the system to demonstrate its effectiveness for the intended user and purpose. To carry out appropriate tests.

Millbrook Primary School Layer 2: D&T Skills and Knowledge Progression

		Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn Term	Knowledge	To know the stages of making a product. To know how to represent an idea e.g. through talk or a drawing. To know how to explore a range of materials. To know that improvements can be made to a product.	Understand how simple 3D textile products are made. Know how to use tools safely.	Know basic food handling, hygiene practices and personal hygiene. To understand where a range of fruit and vegetables come from e.g. farmed or grown at home. To know the basic principles of nutrition and healthy eating (eatwell plate). To know the names of different tools and their uses.	Understand the need for pattern and seam allowances. To know how to work safely with a range of tools. To know the names of a range of tools and equipment and their uses in relation to their products. To know the properties of some materials.	Understand that mechanical systems have an input and an output. To understand how levers, linkages and pulleys work. To know how to work safely with a range of tools. To know the names and purposes of appropriate tools and equipment. Explain their choice of materials according to functional properties and aesthetic qualities. To know that materials can be joined in temporary and permanent ways.	To understand electrical systems in their products. To know how to strengthen and stiffen more complex structures using a range of equipment. To know how to work safely with a range of tools and apply knowledge of safety to spot hazards. To know the names and purposes of appropriate tools and equipment. To know the purpose and function of a range of materials and their properties. To know that materials can be joined in temporary and permanent ways.	To know how to produce a 3D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. To know how to work safely with a range of tools and apply knowledge of safety to spot hazards. To know the names and purposes of a wider range of tools and their functional properties. To know the purpose and function of a range of materials and their properties. To know the ways in which materials can be joined in temporary and permanent ways.
	Skills	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Develop storylines in their pretend play. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.	Use a template to create two identical shapes. Join fabrics using different techniques e.g. gluing, stapling. Learn how to use tools safely. Cut with help. Measure and mark out with help. Use simple finishing techniques to improve the appearance of their product.	To use the basic principles of nutrition and healthy eating to prepare a healthy and varied dish. To select and use appropriate fruit and vegetables. To cut with some accuracy. To measure with some accuracy. To know how to use tools safely and appropriately. To select and use appropriate tools independently.	To sew using a stitch, to weave and knit. To work safely with a range of tools. To select and use a range of tools and equipment with some accuracy related to their product. Cut and score with more accuracy. To tape, pin, sew and assemble components securely with more accuracy. To choose and use suitable finished techniques related to their product. Measure and mark out with more accuracy. Select materials and reclaimed materials to build and create their products.	To use lever, linkage and pulley mechanisms. To work safely with a range of tools. Select and use appropriate tools and equipment with more accuracy related to their product. Select from and use materials and components, construction and electrical components according to their function and properties. Cut and score with accuracy. To join and combine materials and components accurately in temporary and permanent ways. To shape a range of materials and use joining and cutting skills to finish accurately. To measure and mark out a range of materials accurately.	To begin to use electrical systems in their products, (for example, series circuits, bulbs and motors). To apply their understanding of how to strengthen and stiffen more complex structures using a range of equipment. To work safely with a range of tools and apply knowledge of safety to spot hazards. Select and use a range of appropriate tools and equipment with accuracy related to their product. Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties and combine appropriate ingredients, materials and resources. Cut and score with accuracy to ensure a good-quality finish to the product. Join with accuracy in temporary and permanent ways to ensure a good-quality finish to the product. To apply shape, cutting and joining skills to ensure a good-quality finish to the product. To measure and mark out a range of materials accurately.	To make a 3D product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. To sew using a range of different stiches. To work safely with a range of tools and apply knowledge of safety to spot hazards. Competently select and use a wider range of appropriate tools and equipment with accuracy related to the product for their functional properties. Select from and use materials and components, construction kits and electrical components according to their function and properties and materials and resources. Cut and score with accuracy to ensure a good-quality finish to the product. To sew, tape, pin, stitch and assemble components in temporary and permanent ways to make a working model. To measure and mark out a range of materials accurately.

Millbrook Primary School Layer 2: D&T Skills and Knowledge Progression

		Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Spring Term	Knowledge	To know the stages of making a product. To know how to represent an idea e.g. through talk or a drawing. To know how to explore a range of materials. To know that improvements can be made to a product.	Understand that different mechanisms produce different types of movement. Know how to use tools safely.	To know how to make a structure stronger, stiffer and more stable. Know the names and purposes of different hand tools. Know how to use hand tools safely.	Demonstrate hygienic food preparation and storage. Know about a range of fresh and processed ingredients appropriate for their product and whether they are grown, reared or caught. To understand the principles of a healthy and varied diet. To know how to work safely with a range of tools. To know the names of a range of tools, utensils and equipment and their uses in relation to their products.	To understand electrical systems in their products. To know how to work safely with a range of tools. To know the names and purposes of appropriate tools and equipment. Explain their choice of materials according to functional properties and aesthetic qualities. To know that materials can be joined in temporary and permanent ways.	Understand that gears and pulleys can be used to speed up, slow down or change the direction of movement. To understand how levers, linkages, pulleys and gears work. To know how to work safely with a range of tools and apply knowledge of safety to spot hazards. To know the names and purposes of appropriate tools and equipment. To know the purpose and function of a range of materials and their properties. To know that materials can be joined in temporary and permanent ways.	Understand that mechanical systems have an input, process and an output. To know how levers, linkages, pulleys, gears, axles and wheels work. To know how to work safely with a range of tools and apply knowledge of safety to spot hazards. To know the names and purposes of a wider range of tools and their functional properties. To know the purpose and function of a range of materials and their properties. To know the ways in which materials can be joined in temporary and permanent ways.
	Skills	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Develop storylines in their pretend play. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.	Begin to use mechanisms (levers and sliders). Learn how to use tools safely. Cut with help. Measure and mark out with help. Use simple finishing techniques to improve the appearance of their product.	To build structures, exploring how they can be made stronger, stiffer and more stable. Begin modelling in 2D and 3D. Cut and score with some accuracy. Join in temporary ways using basic joining techniques e.g., gluing, taping. To choose and use appropriate finishing techniques. To measure with some accuracy. To know how to use tools safely and appropriately. To select and use appropriate tools independently. To select materials and reclaimed materials to build and create their products.	To apply the principles of a healthy and varied diet. To select and use appropriate ingredients and begin to combine them. To select and use a range of tools, utensils and equipment with some accuracy related to their product. Cut with more accuracy. Measure with more accuracy.	To begin to use electrical systems in their products (for example, series circuits incorporating switches, bulbs) To work safely with a range of tools. Select and use appropriate tools and equipment with more accuracy related to their product. Select from and use materials and components, construction and electrical components according to their function and properties. Cut and score with accuracy. To join and combine materials and components accurately in temporary and permanent ways. To shape a range of materials and use joining and cutting skills to finish accurately. To measure and mark out a range of materials accurately.	To use lever, linkage, pulley and gear mechanisms. To work safely with a range of tools and apply knowledge of safety to spot hazards. Select and use a range of appropriate tools and equipment with accuracy related to their product. Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties and combine appropriate ingredients, materials and resources. Cut and score with accuracy to ensure a good-quality finish to the product. Join with accuracy in temporary and permanent ways to ensure a good-quality finish to the product. To apply shape, cutting and joining skills to ensure a good-quality finish to the product. To measure and mark out a range of materials accurately.	To use lever, linkage, pulley, gear, axle and wheel mechanisms work. To work safely with a range of tools and apply knowledge of safety to spot hazards. Competently select and use a wider range of appropriate tools and equipment with accuracy related to the product for their functional properties. Select from and use materials and components, construction kits and electrical components according to their function and properties and materials and resources. Cut and score with accuracy to ensure a good-quality finish to the product. To assemble components in temporary and permanent ways to make a working model. To measure and mark out a range of materials accurately.

Millbrook Primary School Layer 2: D&T Skills and Knowledge Progression

		Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Summer Term	Knowledge	To know the stages of making a product. To know how to represent an idea e.g. through talk or a drawing. To know how to explore a range of materials. To know that improvements can be made to a product.	Know how to use tools safely. Know the characteristics of their chosen materials.	Distinguish between fixed and freely moving axles. Know the names and purposes of different hand tools. Know how to use hand tools safely.	Distinguish between fixed and loose pivots. To understand how lever and linkages work. To know how to work safely with a range of tools. To know the names of a range of tools and equipment and their uses in relation to their products. To know the properties of some materials.	To develop their understanding of how to strengthen and stiffen more complex structures using a range of equipment. To use knowledge of nets, cubes and cuboids to make more complex 3D shapes. To know how to work safely with a range of tools. To know the names and purposes of appropriate tools and equipment. Explain their choice of materials according to functional properties and aesthetic qualities. To know that materials can be joined in temporary and permanent ways.	To know and apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens. Understand about seasonality in relation to food products and the source of different food products. To understand the nutritional content of different foods. To know how to work safely with a range of utensils and apply knowledge of safety to spot hazards. To know the names and purposes of appropriate utensils and equipment.	Understand electrical systems in their products. Understand that electrical systems have an input, process and an output. To know how to strengthen, stiffen and reinforce 3D frameworks using appropriate equipment. To know how to work safely with a range of tools and apply knowledge of safety to spot hazards. To know the names and purposes of a wider range of tools and their functional properties. To know the purpose and function of a range of materials and their properties. To know the ways in which materials can be joined in temporary and permanent ways.
	Skills	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Develop storylines in their pretend play. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.	To build structures, exploring how they can be made stronger, stiffer and more stable. Learn how to use tools safely. Cut with help. Measure and mark out with help. Use simple finishing techniques to improve the appearance of their product. Select from a range of materials according to their characteristics. Join using different techniques e.g. gluing and stapling.	To explore and use mechanisms (levers, sliders, wheels and axles). Cut and score with some accuracy. Join in temporary ways using basic joining techniques e.g., gluing, taping. To choose and use appropriate finishing techniques. To measure with some accuracy. To know how to use tools safely and appropriately. To select and use appropriate tools independently. To select materials, components and construction kits to build and create their products.	To use lever and linkage mechanisms. To work safely with a range of tools. To select and use a range of tools and equipment with some accuracy related to their product. Cut and score with more accuracy. To assemble components securely with more accuracy. To choose and use suitable finished techniques related to their product. Measure and mark out with more accuracy. Select materials, components, reclaimed materials and construction kits to build and create their products.	To strengthen and stiffen more complex structures using a range of equipment. To use nets to make more complex 3D shapes. To work safely with a range of tools. Select and use appropriate tools and equipment with more accuracy related to their product. Select from and use materials and components, construction and electrical components according to their function and properties. Cut and score with accuracy. To join and combine materials and components accurately in temporary and permanent ways. To shape a range of materials and use joining and cutting skills to finish accurately. To measure and mark out a range of materials accurately.	Apply the nutritional content of different foods to their product. To select, use and combine appropriate ingredients. Select from and use materials and components, including ingredients, according to their function and properties and combine appropriate ingredients, materials and resources. To work safely with a range of tools and apply knowledge of safety to spot hazards. Select and use a range of appropriate utensils. Tools and equipment with accuracy related to their product. Cut with accuracy. To measure accurately.	Use electrical systems in their products (series circuits, bulbs, buzzers and motors). To apply their understanding of how to strengthen, stiffen and reinforce 3D frameworks using appropriate equipment. To work safely with a range of tools and apply knowledge of safety to spot hazards. Competently select and use a wider range of appropriate tools and equipment with accuracy related to the product for their functional properties. Select from and use materials and components, construction kits and electrical components according to their function and properties and materials and resources. Cut and score with accuracy to ensure a good-quality finish to the product. To assemble components in temporary and permanent ways to make a working model. To measure and mark out a range of materials accurately.