Design Technology Knowledge Progression

Knowledge Progression in Design Technology in Nursery		
Early Learning Goals for Expressive Arts and Design		
Physical Development: Moving and Handling	Expressive Art and Design Exploring and Using Media and Material	Understanding the World
Explain why safety is an important factor in handling tools and moving equipment and materials, and have sensible rules for everybody to follow. Understand the rules for using tools and equipment. Teach children the skills they need to use equipment safely, e.g. cutting with scissors or using tools. Understand the importance of healthy eating and hygiene routines.	Understand how to build and combine different materials together based on their properties, which bricks would go at the base of your tower. Introduce vocabulary to enable children to talk about their observations and experiences, e.g. 'smooth' 'shiny' 'rough' 'prickly' 'flat' 'patterned' 'jagged', 'bumpy' 'soft' and 'hard'. Support children in thinking about what they want to make, the processes that may be involved and the materials and resources they might need, such as a photograph to remind them what the climbing frame is like. Talk with children about where they can see models and plans in the environment, such as at the local planning office, in the town square, or at the new apartments down the road.	Understand the differences between materials and discuss changes they notice. Plan and introduce new vocabulary related to the exploration and encourage children to use it.
Personal Social and Emotional		
Talk to children about the importance of eating healthily and brushing their teeth. Consider how to support oral health. Talk to children about why it's important to wash their hands carefully and throughout the day, including before they eat and after they've used the toilet.		
Key Vocabulary:		

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Let's build- strong, weak, stable, on top, side by side, under, square, triangle, round, long, short, tall, rectangle, cube, frame, model, join, fix, plan, draw, paint, measure. Fantastic fruit- soft, hard, smooth, spiky, bumpy, long, round, crunchy, squashy, sweet, juicy, bitter, sour. Chair for three bears- stable, stability, wide base, wobbly, strong, strength, collapse, heavy, broken, light, user, purpose, plan, model, materials.

Design Technology Knowledge Progression

Knowledge Progression in Design Technology in Reception		
Early Learning Goals for Expressive Arts and Design		
Physical Development: Moving and Handling	Expressive Art and Design Exploring and Using Media and Material	Understanding the World
Understand the rules for using tools and equipment and to be able to apply them when approaching tasks independently. Explain why safety is an important factor in handling tools and moving equipment and materials, and have sensible rules for everybody to follow. Teach children the skills they need to use equipment safely, e.g. cutting with scissors or using tools. Understand the importance of healthy eating and hygiene routines.	Understand how to build and combine different materials together based on their properties, which bricks would go at the base of your tower. Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue. Understand how to use a range of materials and tools with care and precision. Introduce vocabulary to enable children to talk about their observations and experiences, e.g. 'smooth' 'shiny' 'rough' 'prickly' 'flat' 'patterned' 'jagged', 'bumpy' 'soft' and 'hard'. Support children in thinking about what they want to make, the processes that may be involved and the materials and resources they might need, such as a photograph to remind them what the climbing frame is like. Talk with children about where they can see models and plans in the environment, such as at the local planning office, in the town square, or at the new apartments down the road.	Understand the differences between materials and discuss changes they notice. Plan and introduce new vocabulary related to the exploration and encourage children to use it.
Personal Social and Emotional		
Understands the need to eat a healthy range of foodstuffs and understands need for variety in food. Know the different factors that		

Design Technology Knowledge Progression

support their overall health and wellbeing: • regular physical activity • healthy eating • toothbrushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian		

Key Vocabulary:

Fantastic fruits- soft, hard, smooth, spiky, bumpy, long, round, crunchy, squashy, sweet, juicy, bitter, sour.
Let's look at hats- Soft, rough, knitted, tassels, ear flaps, wool, woolly, warm, thick, stripy, logo, user, purpose, plan, model, materials, label, Mould, fix, join, push, squeeze, and pinch, Joining, Fixing, Fabric, Stapler, Staples, Sellotape, Masking tape, Glue stick, PVA glue, Glue spreader, Overlapping
Vehicles- think, design, features, draw, plan, design, user, purpose, style, features, model, turn, move, join, fix, secure, evaluate, improve.

Design Technology Knowledge Progression

Knowledge Progression in Design Technology at Key Stage 1	
National Curriculum	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. 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 projects. Cooking and nutrition As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to: Key stage 1 ♣ use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from.

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Year 1	**<u>Food – Design, make and evaluate a fruit salad for a school event to provide a healthy option</u>** ▪ Understand where a range of fruit and vegetables come from e.g. farm or grown at home. ▪ **Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruits and vegetables are part of the 'Eat Well Plate'.** ▪ Know and use technical sensory vocabulary relevant to the project. ▪ Key vocabulary – Fruit / vegetable names, cut, slice, peel, chop, knife, chopping board, seed, **design, make, evaluate** **<u>Textiles – Design, make and evaluate a placemat to keep the table clean.</u>** ▪ Understand how simple 3-D textile products are made, using a template to create two identical shapes. ▪ **Understand how to join fabrics using different techniques e.g. glue and stapling.** ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary – Fabric, felt, fabric glue, joining techniques, finishing techniques, decorate, finish, join, **design, make, evaluate** **<u>Mechanisms – Design, make and evaluate a card using sliders and levers to celebrate an event / occasion.</u>** ▪ **Explore and use sliders and levers.** ▪ Understand that different mechanisms produce different types of movement. ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary – Slider, lever, pivot, slot, card, masking tape, join, pull, push, up, down, forwards, backwards, **design, make, evaluate**

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Year 2	**<u>Food – Design, make and evaluate a healthy sandwich for a school event to provide a healthy option</u>** Understand where a range of fruit and vegetables come from e.g. farm or grown at home. **Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruits and vegetables are part of the 'Eat Well Plate'.** **Know and use technical sensory vocabulary relevant to the project.** Key vocabulary – Variety of fruit and vegetables, ingredients, grate, grater, peeler, core, pip, skin, flesh **<u>Textiles – Design, make and evaluate a glove/finger puppet to entertain a younger child</u>** ▪ Understand how simple 3-D textile products are made, using a template to create two identical shapes. ▪ **Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch and stapling.** ▪ Know and **use technical vocabulary** relevant to the project. ▪ Key vocabulary – Thread, needle, template, mark out, features, purpose, function **<u>Mechanisms – Design, make and evaluate a pull along toy to entertain a younger child</u>** ▪ **Explore and use wheels, axles and axle holders.** ▪ Distinguish between fixed and freely moving axles. ▪ Know and **use technical vocabulary** relevant to the project. ▪ Key vocabulary – Vehicle, wheel, axle, axle holder, chassis, body, cab, mechanism, functional

Design Technology Knowledge Progression

Knowledge Progression in Design Technology at Lower Key Stage 2	
National Curriculum	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. 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 As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to: Key stage 2 ♣ 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.

Design Technology Knowledge Progression

Year 3	**<u>Food – Design, make and evaluate soup and bread for a school event to provide a healthy option</u>** **Know how to use appropriate equipment and utensils to prepare and combine food.** Know about a range of fresh and processed ingredients, appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately. Key vocabulary – taste, sweet, sour, appearance, grown, caught, frozen, tinned **<u>Textiles – Design, make and evaluate an apron for themselves or someone else to protect their clothing</u>** ▪ **Know how to strengthen, stiffen and reinforce existing fabrics.** ▪ **Understand how to securely join two pieces of fabric together.** ▪ Understand the need for patterns and seam allowances. ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary – names of fabrics, fastening, zip, button, strength, weakness, seam, functional **<u>Pneumatics – Design, make and evaluate a moving creature for a family member to provide entertainment</u>** ▪ **Understand and use pneumatic mechanisms.** ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary – Components, fixing, attaching, tubing, syringe, plunger, pneumatic, system, input movement, control, compression, pressure, inflate, deflate, air-tight

Design Technology Knowledge Progression

Year 4	**<u>Textiles – Design, make and evaluate a soft toy to entertain a younger child</u>** ▪ **Know how to strengthen, stiffen and reinforce existing fabrics.** ▪ **Understand how to securely join two pieces of fabric together.** ▪ Understand the need for patterns and seam allowances. ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary – utensil, preference, savoury, hygienic, edible, processed, seasonal, reared **<u>Cutting & Joining - Design, make and evaluate a keepsake box for a family member to provide storage</u>** ▪ **Develop and use knowledge of how to construct strong, stiff shell structures.** ▪ Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary – compartment, structure, stiffening, seam allowance, prototype, innovative, aesthetics **<u>Simple Circuits & Switches - Design, make and evaluate a nightlight/torch for a specific purpose</u>** ▪ **Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.** ▪ **Apply their understanding of computing to program and control their products.** ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary - 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

Design Technology Knowledge Progression

Knowledge Progression in Design Technology at Upper Key Stage 2	
National Curriculum	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. 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 As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to: Key stage 2 ♣ 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.

Design Technology Knowledge Progression

Year 4, 5 & 6	**<u>Food – Design make and evaluate for to provide a healthy option</u>** **Know how to use appropriate equipment and utensils to prepare and combine food.** Know about a range of fresh and processed ingredients, appropriate for their product, and whether they are grown, reared or caught. **Know and use relevant technical and sensory vocabulary appropriately.** Key vocabulary - 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
Year 5	**<u>Textiles – Design, make and evaluate a hat/cap for a younger child to use at playtime</u>** ▪ Develop a 3-D textile product that can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. ▪ **Know how to strengthen, stiffen and reinforce existing fabrics.** ▪ Know and use relevant technical and sensory vocabulary appropriately. ▪ Key vocabulary – wadding, right side, wrong side, hem, mock up **<u>Cutting & Joining - Design, make and evaluate a birdhouse for gardeners to use to attract birds</u>** ▪ **Know how to strengthen, stiffen and reinforce 3-D frameworks.** ▪ Know and use relevant technical and sensory vocabulary appropriately. ▪ Key vocabulary – frame structure, stiffen, strengthen, temporary, permanent, design brief **<u>Simple Circuits & Switches - Design, make and evaluate an alarm for a school shed to provide security</u>** ▪ **Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.** ▪ **Apply their understanding of computing to program and control their products.** ▪ Know and use technical vocabulary relevant to the project. ▪ Key vocabulary – names of components used, series circuit, system, monitor, control, system, flowchart

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Year 6	**<u>Textiles – Design, make and evaluate a tablet/mobile phone case for themselves to carry devices</u>** Develop a 3-D textile product that can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. **Know how to strengthen, stiffen and reinforce existing fabrics.** Know and use relevant technical and sensory vocabulary appropriately. Key vocabulary – reinforce, design decisions, authentic, prototype **<u>Cutting & Joining - Design, make and evaluate a market stall for market traders to support their business</u>** **Know how to strengthen, stiffen and reinforce 3-D frameworks.** Know and use relevant technical and sensory vocabulary appropriately. Key vocabulary – triangulation, stability, design specification, prototype **<u>Simple Circuits & Switches – Design, make and evaluate an electrical board game for younger children</u>** **Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.** **Apply their understanding of computing to program and control their products.** Know and use technical vocabulary relevant to the project. Key vocabulary – parallel circuit, input device, output device, program