Duddon St Peter's CE Primary School

Design Technology Progression Map

Substantive Knowledge – design, make, evaluate and technical knowledge.

Disciplinary Knowledge – thinking like a designer the children to use their substantive knowledge of products and materials around them to make links between and across different areas of the curriculum.

| | Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Design | Make verbal plans and design choices.<br><br>Talk about what they are going to make before they do it. | Think and talk about what they are going to do before they make it.<br><br>Plan what they are going to make by drawing it first. | Design appealing products for a particular user based on simple design criteria.<br><br>Develop and communicate these ideas through talk, drawings and mock ups where relevant.<br><br>Include individual preferences | Generate ideas based on simple design criteria and their own experiences, explaining what they could make.<br><br>Develop, model and communicate their ideas through talking, mock-ups and drawings.<br><br>Know about different structures in | Generate realistic ideas through discussion and design criteria for a functional product fit for purpose and specific user/s.<br><br>Use a variety of methods to communicate ideas including: annotated sketches, prototypes, final product sketches, pattern pieces and communication technology such as web-based recipes.<br><br>Create a plan which shows order, | Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups.<br><br>Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.<br><br>Generate, develop, model and | Generate innovative ideas through research including surveys, interviews, questionnaires and discussion with peers to develop a design brief and criteria for a design specification.<br><br>Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.<br><br>Develop and communicate ideas through discussion, annotated drawings, | Use research, surveys, interviews, questionnaires and web-based resources. to develop a design specification for a range of functional products.<br><br>Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.<br>Develop and communicate ideas through discussion, annotated drawings, exploded drawings, |

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| | | | and requirements in a design. | the natural world and everyday objects. | equipment and tools.<br><br>Make design decisions. | communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. | exploded drawings and drawings from different views. | drawings from different views and where appropriate, computer-aided design. |
| Make | Choose the right resources to carry out their own plan.<br><br>Use one handed tools and equipment.<br><br>Join different materials and explore different textures.<br><br>Select and use activities and resources, with help. | Choose the resources needed for the activity.<br><br>Construct with a purpose, using a variety of resources.<br><br>Use simple tools and techniques.<br><br>Build / construct with a wide range of objects.<br><br>Select tools & techniques to shape, assemble and join. | Explain what I am making and why.<br><br>Select tools/equipment to cut, shape, join, finish and explain choices.<br><br>Measure, mark out, cut and shape with support.<br><br>Choose suitable materials and explain choices.<br><br>Work in a safe and hygienic manner. | Explain what I am making and why it fits the purpose.<br><br>Make suggestions about what I need to do next.<br><br>Join materials/ components together in different ways.<br><br>Measure, mark out, cut and shape materials and components with support.<br><br>Describe which tools I | Select suitable tools/equipment, explain choices and begin to use them accurately.<br><br>Select appropriate materials fit for purpose.<br><br>Begin to measure, mark out, cut and shape materials/component with some accuracy.<br><br>Begin to assemble, join, and combine materials and components with some accuracy.<br><br>Begin to apply a range of finishing techniques with some accuracy. | Select suitable tools/equipment, explain choices in relation to required techniques and begin to use them accurately.<br><br>Select appropriate materials fit for purpose and explain their choices.<br><br>Measure, mark out, cut and shape materials/components with some accuracy.<br>Assemble, join, and combine materials and components with some accuracy.<br><br>Apply a range of finishing techniques with some accuracy. | Use selected tools/equipment with good level of precision.<br><br>Select appropriate materials, fit for purpose; explain choices, considering functionality.<br><br>Create and follow detailed step-by-step plans.<br><br>With increasing accuracy assemble, join and combine materials/components.<br><br>With increasing accuracy measure, mark out, cut and shape materials/components. | Use selected tools and equipment with precision.<br><br>Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics.<br><br>Create, follow, and adapt detailed step-by-step plans.<br><br>Explain how product will appeal to audience; make changes to improve quality.<br><br>Accurately measure, mark out, cut and shape materials/components.<br><br>Accurately assemble, join and combine |

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| | when necessary. | Replicate structures with materials / components. Discuss how to make an activity safe and hygienic.<br><br>Record experiences by drawing, writing, voice recording.<br><br>Understand different media can be combined for a purpose.<br><br>Practise some appropriate safety measures independently. | | am using and why.<br><br>Choose suitable materials and explain choices depending on characteristics.<br><br>Work safely and hygienically. | | | With increasing accuracy apply a range of finishing techniques | materials/components.<br><br>Accurately apply a range of finishing techniques. |

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| Evaluate | Develop their own ideas and decide which materials to use to express them.<br><br>Explore how things work & talk about what they see | Adapt work if necessary.<br><br>Dismantle, examine, talk about existing objects/structures.<br><br>Talk about how things work.<br><br>Look at similarities and differences between existing objects / materials / tools. | Talk about my work linking it to what I was asked to do.<br><br>Talk about existing products and say what is and isn't good.<br><br>Talk about things that other people have made.<br><br>Talk about existing products considering ; use, materials, how they work, audience, where they might be used.<br><br>Begin to talk about what could make the | Describe what went well thinking about design criteria.<br><br>talk about existing products considering use, materials, how they work, audience, where they might be used, express personal opinion.<br><br>Evaluate how good existing products are,<br><br>Talk about what I would do differently if I were to do it again and why. | Look at design criteria while designing and making.<br><br>Use design criteria to evaluate.<br><br>Say what would be changed to make the design better.<br><br>Begin to evaluate existing products considering how well they have been made, materials used, whether they work, how they have been made and if they are fit for purpose.<br><br>Begin to understand by whom, when and where products were designed. | Look at and refer to design criteria while designing and making.<br><br>Use design criteria to evaluate finished product.<br><br>Say what I would change to make a design better to explain how I could improve the original design.<br><br>Evaluate existing products, considering how well they have been made, materials used, whether they work, how they have been made and if they are fit for purpose.<br><br>Understand and discuss by whom, when and where products were designed. | Evaluate the quality of the design when designing and making.<br><br>Evaluate ideas and the finished product against design specification, considering purpose and appearance.<br><br>Evaluate and discuss existing products, considering how well they've been made, materials used, whether they work, how they have been made fit for purpose.<br><br>Begin to evaluate how much products cost to make and how innovative they are.<br><br>Test and evaluate final product. | Evaluate the quality of the design while designing and making; is it fit for purpose?<br><br>Evaluate ideas and finished product against specification, stating if it's fit for purpose.<br><br>Test and evaluate final product; explain what would improve it and the effect different resources may have had.<br><br>Do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose.<br><br>Evaluate how much products cost to make and how innovative they are. |

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| | | | product better. | | | | | Consider the impact of products beyond their intended purpose. |

Textiles

| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Understand the process of weaving and develop the appropriate fine motor skills. | Know that a design is a way of planning our idea before we start.<br>Know that threading is putting one material through an object. | Know that 'joining technique' means connecting two pieces of material together.<br><br>Know that there are various temporary methods of joining fabric by using staples. glue or pins.<br><br>Understand that different techniques for joining materials can be used for different purposes.<br><br>Understand that a template (or fabric pattern) is | Know that sewing is a method of joining fabric.<br><br>Know that different stitches can be used when sewing.<br><br>Understand the importance of tying a knot after sewing the final stitch.<br><br>Know that a thimble can be used to protect my fingers when sewing. | Know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.<br><br>Know that when two edges of fabric have been joined together it is called a seam.<br><br>Know that it is important to leave space on the fabric for the seam.<br><br>Understand that some products are turned inside out after sewing | Know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.<br><br>Know that when two edges of fabric have been joined together it is called a seam.<br><br>Know that it is important to leave space on the fabric for the seam.<br><br>Understand that some products are turned inside out after sewing | To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric.<br><br>To understand that it is easier to finish simpler designs to a high standard.<br><br>Know that soft toys are often made by creating appendages separately and then attaching them to the main body.<br><br>Know that small, neat stitches | Understand that it is important to design clothing with the client/ target customer in mind.<br><br>Know that using a template (or clothing pattern) helps to accurately mark out a design on fabric.<br><br>Understand the importance of consistently sized stitches |

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| | | used to cut out the same shape multiple times.<br><br>Know that drawing a design idea is useful to see how an idea will look. | | so the stitching is hidden. | so the stitching is hidden. | which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely. | |

Structures

| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Explore different materials freely - to develop ideas, see how to use them and what to make.<br><br>Select shapes appropriately.<br><br>Combine shapes to make new ones. | Know there are a range to different materials that can be used to make a model and that they are all slightly different.<br><br>Making simple suggestions to fix their junk model.<br><br>Know that 'waterproof' materials are those which do not absorb water. | Understand that the shape of materials can be changed to improve the strength and stiffness of structures.<br><br>Understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).<br><br>Understand that axles are used in structures and mechanisms to | Know that shapes and structures with wide, flat bases or legs are the most stable.<br><br>Understand that the shape of a structure affects its strength.<br><br>Know that materials can be manipulated to improve strength and stiffness.<br><br>Know that a structure is something which has been formed | Understand that wide and flat based objects are more stable.<br><br>Understand the importance of strength and stiffness in structures. | Understand what a frame structure is.<br>Know that a 'free-standing' structure is one which can stand on its own. | Understand some different ways to reinforce structures.<br><br>Understand how triangles can be used to reinforce bridges.<br><br>Know that properties are words that describe the form and function of materials.<br><br>Understand why material selection is important based on properties. | Know that structures can be strengthened by manipulating materials and shapes.<br><br>Understand what a 'footprint plan' is. |

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| | | make parts turn in a circle.<br><br>Begin to understand that different structures are used for different purposes.<br><br>Know that a structure is something that has been made and put together. | or made from parts.<br><br>Know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.<br><br>Know that a 'strong' structure is one which does not break easily.<br>Know that a 'stiff' structure or material is one which does not bend easily. | | | Understand the material (functional and aesthetic) properties of wood. | |

Mechanisms

| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Know that wheels need to be round to rotate and move.<br><br>Understand that for a wheel to move it must be attached to a rotating axle. | Know that mechanisms are a collection of moving parts that work together as a machine to produce movement. | To understand how pneumatic systems work.<br><br>Understand that pneumatic systems can be used as part of a mechanism. | Understand that all moving things have kinetic energy.<br><br>Understand that kinetic energy is the energy that something (object/person) | To know that mechanisms control movement.<br><br>Understand that mechanisms can be used to change one kind | Understand that the mechanism in an automata uses a system of cams, axles and followers.<br><br>Understand that different shaped cams produce different outputs. |

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| Know that an axle moves within an axle holder which is fixed to the vehicle or toy.<br><br>Know that the frame of a vehicle (chassis) needs to be balanced. | Know that there is always an input and output in a mechanism.<br><br>Know that an input is the energy that is used to start something working.<br><br>Know that an output is the movement that happens as a result of the input.<br><br>Know that a lever is something that turns on a pivot.<br><br>Know that a linkage mechanism is made up of a series of levers. | Know that pneumatic systems operate by drawing in, releasing and compressing air. | has by being in motion.<br><br>Know that air resistance is the level of drag on an object as it is forced through the air.<br><br>Understand that the shape of a moving object will affect how it moves due to air resistance. | of motion into another.<br><br>Understand how to use sliders, pivots and folds to create paper-based mechanisms. | |

## Food Technology

| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Plant seeds and care for growing | Know that soup is ingredients | Know that a blender is a | Know that 'diet' means the food | Know that not all fruits and | Know that the amount of an | Understand where meat | Know that 'flavour' is how a |

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| plants- begin to understand where food comes from.<br><br>Begin to be aware of different vegetables and be able to talk about their likes and dislikes.<br><br>Sort different vegetables, explaining their grouping.<br><br>Know that we cook some vegetables and some we eat raw. | (usually vegetables and liquid) blended together.<br><br>Know that vegetables are grown.<br><br>Recognise and name some common vegetables.<br><br>Know that different vegetables taste different.<br><br>Know that eating vegetables is good for us.<br><br>Discuss why different packages might be used for different foods | machine which mixes ingredients together into a smooth liquid.<br><br>Know that a fruit has seeds.<br><br>Know that fruits grow on trees or vines.<br><br>Know that vegetables can grow either above or below ground.<br><br>Know that vegetables is any edible part of a plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber). | and drink that a person or animal usually eats.<br><br>Understand what makes a balanced diet.<br><br>Know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.<br><br>Understand that I should eat a range of different foods from each food group, and roughly how much of each food group.<br><br>Know that 'ingredients' means the items in a mixture or recipe | vegetables can be grown in the UK.<br><br>Know that climate affects food growth.<br><br>Know that vegetables and fruit grow in certain seasons.<br><br>Know that cooking instructions are known as a 'recipe'.<br><br>Know that imported food is food which has been brought into the country.<br><br>Know that exported food is food which has been sent to another country.<br><br>Know that eating seasonal foods can have a positive impact | ingredient in a recipe is known as the 'quantity.'<br><br>Know that safety and hygiene are important when cooking.<br><br>Know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping.<br><br>Understand the importance of budgeting while planning ingredients for biscuits.<br>Know that products often have a target audience. | comes from - learning that beef is from cattle and how beef is reared and processed.<br><br>Know that recipes can be adapted to suit nutritional needs and dietary requirements.<br><br>Know that I can use a nutritional calculator to see how healthy a food option is.<br><br>Understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.<br><br>Know that coloured chopping boards | food or drink tastes.<br><br>Know that many countries have 'national dishes' which are recipes associated with that country.<br><br>Know that 'processed food' means food that has been put through multiple changes in a factory.<br><br>Understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides.<br><br>Understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork). |

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| | | | | on the environment.<br><br>Know that similar coloured fruits and vegetables often have similar nutritional benefits.<br><br>Know that the appearance of food is as important as taste. | | can prevent cross-contamination.<br><br>Know that nutritional information is found on food packaging.<br><br>Know that food packaging serves many purposes. | |

Cycle A

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Nursery/Reception | Cooking and nutrition Soup | Seasonal projects | Textiles Bookmarks Fine motor and weaving | Seasonal Projects Easter | Structures boats | Cooking and nutrition Sandwiches and fillings |
| Junk modelling and construction provided throughout the year through continuous provision. | | | | | | |
| | Textiles | | Construction/Mechanisms | | Food and Nutrition | |
| Year 1/2 | Puppets (Y1) | | Wheels and axles (Y1) | | Smoothies (Y1) | |
| Year 3/4 | Cross stitch and applique – Cushions (Y3) | | Pavilions | | Cooking seasonally | |
| Year 5/6 | Waistcoats | | Playgrounds | | Developing a recipe | |

DT Week – Year 1/2 and 3/4 structure focus  Year 5/6 mechanisms focus

Cycle B

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Nursery/Reception | Food and nutrition – toast and toppings | Seasonal projects Christmas | Food and nutrition Pizza faces (twinkl) | Seasonal projects Easter | Textiles Dens and tents | Beach huts (twinkl) |
| Junk modelling and construction provided through continuous provision | | | | | | |
| | Textiles | | Construction/Mechanism | | Food and Nutrition | |
| Year 1/2 | Pouches | | Baby bear's chair | | Balanced diet – making wraps | |

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| Year 3/4 | Fastenings – making a book sleeve | Pneumatic toys | Adapting a recipe -biscuits |
| Year 5/6 | Stuffed toys | Pop-up book | Come dine with me |

DT Week – Year 1/2 and 3/4 mechanisms focus. Year 5/6 Structures focus