

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
Design	Make verbal plans and design choices. 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. Plan what they are going to make by drawing it first.	Design appealing products for a particular user based on simple design criteria. Develop and communicate these ideas through talk, drawings and mock-ups where relevant. Include individual preferences and	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through talking, mock-ups and drawings. Know about different structures in the natural world and	Generate realistic ideas through discussion and design criteria for a functional product fit for purpose and specific user/s. 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. Create a plan which shows order, equipment and tools.	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. Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. Generate, develop, model and communicate realistic	Generate innovative ideas through research including surveys, interviews, questionnaires and discussion with peers to develop a design brief and criteria for a design specification. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. Develop and communicate ideas through discussion, annotated drawings, exploded drawings	Use research, surveys, interviews, questionnaires and web-based resources. to develop a design specification for a range of functional products. Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. Develop and communicate ideas through discussion, annotated drawings, exploded drawings, drawings from



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



	necessary .	with materials / components. Discuss how to make an activity safe and hygienic. Record experiences by drawing, writing, voice recording. Understand different media can be combined for a purpose. Practise some appropriate safety measures independently.		Choose suitable materials and explain choices depending on characteristics . Work safely and hygienically.			range of finishing techniques	materials/component s. 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. Explore how things work & talk about what they see	Adapt work if necessary. Dismantle, examine, talk about existing objects/structures. Talk about how things work. Look at similarities and differences between existing objects / materials / tools.	Talk about my work linking it to what I was asked to do. Talk about existing products and say what is and isn't good. Talk about things that other people have made. Talk about existing products considering; use, materials, how they work, audience, where they might be used. Begin to talk about what could make the product better.	Describe what went well thinking about design criteria. talk about existing products considering use, materials, how they work, audience, where they might be used, express personal opinion. Evaluate how good existing products are, Talk about what I would do differently if I were to do it again and why.	Look at design criteria while designing and making. Use design criteria to evaluate. Say what would be changed to make the design better. 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. Begin to understand by whom, when and where products were designed.	Look at and refer to design criteria while designing and making. Use design criteria to evaluate finished product. Say what I would change to make a design better to explain how I could improve the original design. 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. Understand and discuss by whom, when and where products were designed.	Evaluate the quality of the design when designing and making. Evaluate ideas and the finished product against design specification, considering purpose and appearance. 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. Begin to evaluate how much products cost to make and how innovative they are. Test and evaluate final product.	Evaluate the quality of the design while designing and making; is it fit for purpose? Evaluate ideas and finished product against specification, stating if it's fit for purpose. Test and evaluate final product; explain what would improve it and the effect different resources may have had. 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. Evaluate how much products cost to make and how innovative they are. Consider the impact of products beyond their intended purpose.
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Textiles

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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. Know that threading is putting one material through an object.	Know that 'joining technique' means connecting two pieces of material together. Know that there are various temporary methods of joining fabric by using staples, glue or pins. Understand that different techniques for joining materials can be used for different purposes. Understand that a template (or fabric pattern) is used to cut out the same shape multiple times. Know that drawing a design	Know that sewing is a method of joining fabric. Know that different stitches can be used when sewing. Understand the importance of tying a knot after sewing the final stitch. 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. Know that when two edges of fabric have been joined together it is called a seam. Know that it is important to leave space on the fabric for the seam. Understand that some products are turned inside out after sewing so the stitching is hidden.	Know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. Know that when two edges of fabric have been joined together it is called a seam. Know that it is important to leave space on the fabric for the seam. Understand that some products are turned inside out after sewing so the stitching is hidden.	To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. To understand that it is easier to finish simpler designs to a high standard. Know that soft toys are often made by creating appendages separately and then attaching them to the main body. Know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	Understand that it is important to design clothing with the client/target customer in mind. Know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. Understand the importance of consistently sized stitches

		idea is useful to see how an idea will look.					
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Structures

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore different materials freely - to develop ideas, see how to use them and what to make. Select shapes appropriately. 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. Making simple suggestions to fix their junk model. 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. Understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). Understand that axles are used in structures and mechanisms to make parts turn in a circle. Begin to understand that different structures are	Know that shapes and structures with wide, flat bases or legs are the most stable. Understand that the shape of a structure affects its strength. Know that materials can be manipulated to improve strength and stiffness. Know that a structure is something which has been formed or made from parts. Know that a 'stable' structure is one which is firmly fixed and	Understand that wide and flat based objects are more stable. Understand the importance of strength and stiffness in structures.	Understand what a frame structure is. Know that a 'free-standing' structure is one which can stand on its own.	Understand some different ways to reinforce structures. Understand how triangles can be used to reinforce bridges. Know that properties are words that describe the form and function of materials. Understand why material selection is important based on properties. Understand the material (functional and aesthetic) properties of wood.	Know that structures can be strengthened by manipulating materials and shapes. Understand what a 'footprint plan' is.

		used for different purposes.	unlikely to change or move.				
		Know that a structure is something that has been made and put together.	Know that a 'strong' structure is one which does not break easily. Know that a 'stiff' structure or material is one which does not bend easily.				

Mechanisms

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Know that wheels need to be round to rotate and move. Understand that for a wheel to move it must be attached to a rotating axle. Know that an axle moves within an axle holder which is fixed to the vehicle or toy. Know that the frame of a vehicle	Know that mechanisms are a collection of moving parts that work together as a machine to produce movement. Know that there is always an input and output in a mechanism. Know that an input is the energy that is used to start something working.	To understand how pneumatic systems work. Understand that pneumatic systems can be used as part of a mechanism. Know that pneumatic systems operate by drawing in, releasing and compressing air.	Understand that all moving things have kinetic energy. Understand that kinetic energy is the energy that something (object/person) has by being in motion. Know that air resistance is the level of drag on an object as it is forced through the air.	To know that mechanisms control movement. Understand that mechanisms can be used to change one kind of motion into another. Understand how to use sliders, pivots and folds to create paper-based mechanisms.	Understand that the mechanism in an automata uses a system of cams, axles and followers. Understand that different shaped cams produce different outputs.



(chassis) needs to be balanced.	Know that an output is the movement that happens as a result of the input. Know that a lever is something that turns on a pivot. Know that a linkage mechanism is made up of a series of levers.		Understand that the shape of a moving object will affect how it moves due to air resistance.		
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Food Technology

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plant seeds and care for growing plants- begin to understand where food comes from. Begin to be aware of different vegetables and be able to talk about their likes and dislikes. Sort different vegetables,	Know that soup is ingredients (usually vegetables and liquid) blended together. Know that vegetables are grown. Recognise and name some common vegetables.	Know that a blender is a machine which mixes ingredients together into a smooth liquid. Know that a fruit has seeds. Know that fruits grow on trees or vines.	Know that 'diet' means the food and drink that a person or animal usually eats. Understand what makes a balanced diet. Know that the five main food groups are: Carbohydrates, fruits and	Know that not all fruits and vegetables can be grown in the UK. Know that climate affects food growth. Know that vegetables and fruit grow in certain seasons.	Know that the amount of an ingredient in a recipe is known as the 'quantity.' Know that safety and hygiene are important when cooking. Know the following cooking techniques: sieving,	Understand where meat comes from - learning that beef is from cattle and how beef is reared and processed. Know that recipes can be adapted to suit nutritional needs and dietary requirements.	Know that 'flavour' is how a food or drink tastes. Know that many countries have 'national dishes' which are recipes associated with that country. Know that 'processed food' means food that



explaining their grouping. Know that we cook some vegetables and some we eat raw.	Know that different vegetables taste different. Know that eating vegetables is good for us. Discuss why different packages might be used for different foods	Know that vegetables can grow either above or below ground. Know that vegetables is any edible part of a plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	vegetables, protein, dairy and foods high in fat and sugar. Understand that I should eat a range of different foods from each food group, and roughly how much of each food group. Know that 'ingredients' means the items in a mixture or recipe	Know that cooking instructions are known as a 'recipe'. Know that imported food is food which has been brought into the country. Know that exported food is food which has been sent to another country. Know that eating seasonal foods can have a positive impact on the environment. Know that similar coloured fruits and vegetables often have similar nutritional benefits. Know that the appearance of food is as important as taste.	measuring, stirring, cutting out and shaping. Understand the importance of budgeting while planning ingredients for biscuits. Know that products often have a target audience.	Know that I can use a nutritional calculator to see how healthy a food option is. 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. Know that coloured chopping boards can prevent cross-contamination. Know that nutritional information is found on food packaging. Know that food packaging serves many purposes.	has been put through multiple changes in a factory. Understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. Understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).
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Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
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	Simple stitches		Stable structures		Smoothies	
Year 3/4	Egyptian Collars		Product packaging		Cooking seasonally	
Year 5/6	Bags		Playgrounds		Developing a recipe	

STEM week cycle A

Year 1/2 = Matching slider game

Year 3/4 = Mechanical cars

Year 5/6 = Wobble bots

Cycle B

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
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	Levers	Cooking and nutrition balanced diet – making wraps
Year 3/4	Fastenings – making a book sleeve	Pneumatic toys	Adapting a recipe -biscuits
Year 5/6	Stuffed toys	Gears and pulleys	Mexican food - Twinkl

STEM Week Cycle B

Year 1/2 = A chair for bear

Year 3/4 = Helmet

Year 5/6 = Monitoring devices