

Design & Technology – Progression in Knowledge, Skills and Understanding

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>National Curriculum: Pupils should be taught: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <ul style="list-style-type: none"> • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories. 	<p>National Curriculum: Pupils should be taught:</p> <ul style="list-style-type: none"> • To design purposeful, functional, appealing products for themselves and other users based on design criteria ☒ • To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology 		<p>National Curriculum: Pupils should be taught:</p> <ul style="list-style-type: none"> • To 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 • To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design 			
<p>Design - Developing, planning and communicating ideas.</p>	<p>Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them.</p>	<p>Cooking and nutrition Can they describe the texture of foods? Construction Can they talk with others about how they want to construct their product? Can they make simple plans before objects, e.g. drawings, arranging pieces of construction before building?</p>	<p>Mechanisms Can they add some kind of design to their product? Construction Can they make sensible choices as to which material to use for their constructions? Can they develop their own ideas from initial starting points? Can they incorporate some type of movement into models?</p>	<p>Cooking and nutrition Can they choose the right ingredients for a product? Can they describe how their combined ingredients come together? Textiles Can they choose textiles both for their appearance and also qualities?</p>	<p>General across DT in 4: Can they come up with at least one idea about how to create their product? Do they take account of the ideas of others when designing? Can they produce a plan and explain it to others? Can they suggest some improvements and say what was good and not so good about their original design?</p>	<p>Cooking and nutrition Can they describe what they do to be both hygienic and safe? Stiff and flexible sheet materials Are their measurements accurate enough to ensure that everything is precise? How have they ensured that their product is strong and fit for purpose?</p>	<p>Textiles Have they thought about how their product could be sold? Stiff and flexible sheet materials Can they justify why they selected specific materials? Can they work within a budget?</p>

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Make – Working with tools, equipment, materials and components to make quality products.	Create collaboratively, sharing ideas, resources and skills. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons	Cooking and nutrition Can they cut food safely? Do they wash their hands and make sure that surfaces are clean? Mechanisms Can they make a product which moves? Can they cut materials using scissors? Use of materials Can they make a structure/model using different materials? Construction Can they use resources and tools for their building projects?	Use of materials Can they measure materials to use in a model or structure? Can they join material in different ways? Can they use joining, folding or rolling to make materials stronger?	Cooking and nutrition Can they use equipment safely? Can they make sure that their product looks attractive? Textiles Can they join textiles of different types in different ways? (Weaving) Stiff and flexible sheet materials Do they use the most appropriate materials? Can they work accurately to make cuts and holes? Can they join materials?	General across DT in 4: Can they tell if their finished product is going to be good quality? Are they conscience of the need to produce something that will be liked by others? Can they show a good level of expertise when using a range of tools and equipment?	Electrical and mechanical components Can they incorporate a switch into their product? Can they incorporate hydraulics and pneumatics?	Stiff and flexible sheet materials How have they ensured that their work is precise and accurate? Can they hide joints so as to improve the look of their product?
Evaluation – evaluating processes and products	Show resilience and perseverance in the face of challenge.	Cooking and Nutrition Can they think of interesting ways of changing food they have made, e.g, flavours? Mechanisms Can they say why they have chosen moving parts? Can they make their model stronger if it needs to be? Use of materials Is their work tidy?	Textiles Can they explain why they chose a certain textile? Construction Can they consider how to improve their construction?		General across DT in 4: Have they thought of how they will check if their design is successful? Can they begin to explain how they can improve their original design? Can they evaluate their product, thinking of both appearance and the way it works?	Cooking and nutrition How have they presented their product well? Electrical and mechanical components Can they refine their product after testing it?	Textiles Have they given considered or thought about what would improve their product even more?

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Technical Knowledge		<p>Mechanisms Can they describe the materials using different words?</p> <p>Cooking and Nutrition Can they describe the properties of the ingredients they are using? Understand the difference between fruits and vegetables. Describing and grouping fruits by texture and taste.</p> <p>Structures Describing the purpose of structures Learning how to turn 2D nets into 3D structures. Learning that the shape of materials can be changed to improve the strength and stiffness of structures. Understanding that cylinders are a strong type of structure that are often used for windmills. Understanding that windmill turbines use wind to turn and make the machines inside work. Understanding that axles are used in structures and mechanisms to make parts turn in a circle. Developing awareness of different structures for different purposes.</p>	<p>Mechanisms Can they join materials together as part of a moving product? Learning that mechanisms are a collection of moving parts that work together in a machine. Learning that there is and input and output in a mechanism. Identifying mechanisms in everyday objects. Learning that a lever is something that turns on a pivot. Learning that a linkage is a system of levers that are connected by pivots. Exploring wheel mechanisms. Learning how axels help wheels to move a vehicle.</p>	<p>Cooking and nutrition Learning that climate affects food growth. Working with cooking equipment safely and hygienically. Learning that imported foods travel from far away and this can negatively impact the environment. Learning that fruits and vegetables grow in certain seasons. Learning that each fruit and vegetable gives us nutritional benefits. Learning to use, store and clean a knife safely.</p> <p>Structures Identifying features of a castle. Identifying suitable materials to be selected and used for a castle, considering weight, compression and tension. Extending the knowledge of wide and flat based objects are more stable. Understanding the terminology of strut, tie, span, beam. Understanding the difference between frame and shell structure.</p> <p>Textiles Threading needles with greater independence. Tying knots with greater independence. Sewing crossstitch and applique. Understanding the need to count the thread on a piece of evenweave fabric in each direction to create uniform size and appearance. Understanding that fabrics can be layered for affect.</p>	<p>Mechanisms Learning that products change and evolve over time. Learning that all moving things have kinetic energy. Understanding hat kinetic energy is the energy that something has by being in motion.</p>	<p>Cooking and nutrition Understanding where food comes from. Understanding what constitutes a balanced diet. Learning to adapt a recipe to make it healthier. Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option.</p> <p>Electronic components: Learning the key components used to create a functioning circuit. Learning that copper is a conductor and can be used as part of a circuit. Understanding that breaks in a circuit will stop it from working. Explaining how a series circuit will work in my card. Identifying the negative and positive lef of an LED. Drawing a series circuit diagram and symbols.</p>	<p>Mechanisms Using a bench hook to saw effectively</p> <p>Structures Knowing that structures can be strengthened by manipulating materials and shapes.</p>