

PROGRESSION IN KNOWLEDGE – DT

The Big Ideas	Foundation	KS1	Lower KS2
<p>Design</p> <p>For a wide range of users</p>	<p>Knowledge</p> <ul style="list-style-type: none"> • Come up with own ideas. • Work independently to be creative with our ideas. • Draw and design creations before making them • Safely use and explore a variety of materials, tools and techniques, to experiment with colour, design, texture, form and function. 	<ul style="list-style-type: none"> • Describe what products are for and say how they will make them suitable for intended users. • Use simple design criteria to help develop their ideas. • Use knowledge of existing products to help come up with ideas. • Develop and communicate ideas by talking and drawing. • Model ideas by exploring materials, components and construction kits and by making templates, mock-ups and using IT where appropriate. • Understand the buildings in our environment and their use of shape and construction. 	<ul style="list-style-type: none"> • Gather information about the needs and wants of particular individuals and groups. • generate and develop ideas through discussion • design products that are functional and designed for purpose. • Use annotated sketches from different viewpoints including cross sections drawings. • Describe the purpose of products, indicating the design features of their products that will appeal to intended users. • Use given shapes on a computer program to create a design. E.g. Use a computer-aided design program to create a net for packaging.
<p>Master Technical Knowledge</p> <p>Structures Mechanisms Electrical Systems Textiles Cooking & Nutrition</p>	<p>Structures:</p> <ul style="list-style-type: none"> • Select and use materials for particular purposes including selecting appropriate construction kits and materials for building structures • Explore large construction materials, e.g. bricks, wooden planks, crates, drainpipes. • Explore smaller construction materials, e.g. Lego, small wooden blocks, straws and playdough. • Use junk modelling materials to make simple representations of people, places and objects • Learn how to turn the cardboard boxes inside out and rejoin in order to make a better surface for painting or drawing on. 	<ul style="list-style-type: none"> • Make a free standing structure • Know about the simple working characteristics of materials and components • Use a range of materials to understand how to make a free standing structure stronger stiffer and more stable e.g. wider base • Join materials (cardboard) using glue and tape • Flange, L-brace, tabs and hinge joints • Make a model of a house. • Mark out materials to be cut using a template. • Cut strip wood/dowel using hacksaw and bench hook. • Watch a glue gun used by an adult. 	<ul style="list-style-type: none"> • Introduction to Computer Aided Manufacture • Make a strong, stiff shell structure. • Know that materials have both functional properties and aesthetic qualities. • Diagonal struts, dowel and butt joints. • Measure and cut wood. • Make corner joints for stability.

	<ul style="list-style-type: none"> • Find the end of the Sellotape independently. • Use scissors safely. • Learn how to use a range of hole punchers. • Cut along lines, straight and curved • Make flanges. • Fold cut and tear paper and card. • Roll paper and card to make tubes. 		
Mechanisms			
<ul style="list-style-type: none"> • Access and use toys with 	<ul style="list-style-type: none"> • Simple mechanisms, sliders, levers and moving pivots. • Cut along straight lines, curved lines and shapes marked by a template to a specific design. • roll, fold and tear paper and card. • Use tape and glue to create temporary joins, fixed joins and moving joins. • Use a split pin as a lever. • Create a moving picture. • Use wheels and axels to design and make a buggy • Cut wood/dowelling using a hacksaw and bench hook <p>Know how wheels and axles work and understand that some are fixed and some are moving and that these rest in axle holders.</p>		<ul style="list-style-type: none"> • Investigate moving parts e.g. toy cars and trains. • Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels. • Attach wheels to a chassis using an axle join appropriately for different materials and situations e.g. glue, tape. • Working of CAM and how this affects movement. • Make a snail shaped CAM mechanism. <p>Make a moving pop up toy which is functional and decorative.</p>
Electrical Systems (Y 3 upwards)			
			<ul style="list-style-type: none"> • Incorporate an electrical circuit that produces one outcome e.g., light into a model (i.e.) a backlit scene. • Make an electrical circuit with a switch. <p>Attach the circuit to the product safely using tape.</p>
Textiles			

	<ul style="list-style-type: none"> • Explore different materials looking at similarities and differences in texture • Make marks on fabric using paints and pens • Explore decorating fabrics. 	<ul style="list-style-type: none"> • Joining and decorating fabric to make puppets (staple, glue and pin). 	<ul style="list-style-type: none"> • Join and decorate fabric to make a mobile phone holder (cross stitch and applique).
	<p>Cooking and Nutrition</p> <ul style="list-style-type: none"> • Understand the need to eat a variety of foods to stay healthy know the importance for good health of a healthy diet. • Use knives, forks and spoons. • Practise stirring, mixing, pouring and blending. • Group familiar food products. • Understand why we wash our hands before cooking. 	<ul style="list-style-type: none"> • Develop a food vocabulary using taste, smell, texture and feel. • Group familiar food products e.g. fruit and vegetables. • Cut, peel, grate, chop, a range of ingredients and use the bridge and claw grip. • Work safely and hygienically. • Know where to find the nutritional information on packaging. • Measure and weigh food items, non-statutory measures e.g. spoons, cups. • Distinguish between fruit and vegetables and learn about where and when they grow. • Understand where food comes from. se the basic principles of a healthy and varied diet to prepare dishes. • Know how to prepare simple dishes safely and hygienically, without using a heat source. • Know how to knead, prove and bake. 	<ul style="list-style-type: none"> • Join and combine a range of ingredients. • Work safely and hygienically. • Measure and weigh ingredients appropriately. • Develop sensory vocabulary/knowledge using, smell, taste, texture and feel. • Analyse the taste, texture, smell and appearance of a range of foods. • Follow instructions. • Make healthy eating choices from and understanding of a balanced diet. • Use the right tools to slice, mix and peel. • Understanding the impact of the cost and importance of budgeting while planning ingredients for a recipe.
<p>Know about Great Designers Take inspiration</p>	<p>Knowledge</p>		<ul style="list-style-type: none"> • George Stevenson (steam powered railway train). • Nicholas Grimshaw (Eden project). • Charles Lucien Bonaparte (botanist – first greenhouse). • Joseph Paxton (The Crystal Palace Conservatory). • Nadiya Hussain, Nigella Lawson, Jamie Oliver, Raymond Blanc (chefs).

			<ul style="list-style-type: none"> • Sir Christopher Wren (architects). • Tom Raffield/Tom Dixon/Bruno Munro – Light Creators/Artists.
<p>Evaluate, Critique and Test Own and others' work</p>	<p>Knowledge</p> <ul style="list-style-type: none"> • Share work and talk about how it was made. • Talk about whether the design and construction has been effective. • Say what they do and do not like about items they have made and attempt to say why. • Begin to say what they would improve or change if they made it again. 	<ul style="list-style-type: none"> • Say what they like and do not like about items they have made and attempt to say why. • Talk about their designs as they develop and identify strengths and challenges. • Talk about changes made during the making process. • Discuss how closely their finished products meet their design criteria. • Know how to investigate and analyse. • How well products have been designed and made, and who designed and made them. • Why materials have been chosen and the methods of construction used. • How well products work and achieve their purposes. • How well products meet user needs and wants • Where and when products were designed and made. • Whether products can be recycled or reused. 	<ul style="list-style-type: none"> • Identify the strengths and weaknesses of their design ideas. • Decide which design idea to develop. • Consider and explain how the finished product could be improved. • Discuss how well the finished product meets the design criteria and how well it meets the needs the needs of the user.