Sutton Park Primary School

Design and Technology Knowledge and Skills Progression

Research					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Explore a range of existing products, discussing how they are made and how they work. Discuss how these products could help them with their own design		Learn about how key events and individuals in design and technology have helped shape the world. Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.			

Design					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Use pictures, words and models to convey what they want to design Select pictures to help develop ideas and explain what they are making and which materials/ ingredients they are using Discuss their work as it progresses	Use pictures and words to convey what they want to make Use drawings to record ideas as they are developed Add notes to drawings to help with explanations Say how their products will work	Investigate products to the one being made to give a starting point for design Draw product to help understand how they are made Think ahead about the order of their work Describe the purpose of their products	investigate and analyse existing functional products and draw products to help understand how and why they are made Develop more than one design or adaptation of an initial design Indicate the design features of their products that will appeal to intended users	Analyse a range of functional products to develop ideas and prototypes. Sketch and model alternative ideas and record them using annotated diagrams with increasing detail to show they are fit for purpose Carry out research, using surveys, interviews,	Make design decisions, taking account of constraints such as time, resources and cost Justify plans in a convincing way Generate and develop ideas using a range of design techniques Identify the needs, wants, preferences and values of

Say whether their products are for themselves or other users Describe what their products are for Generate ideas by drawing on their own experiences	Say how they will make their products suitable for their intended users Use knowledge of existing products to help come up with ideas		Explain how particular parts of their products work	questionnaires and web-based resources	particular individuals and groups

Make: Cooking and Nutrition					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Outcome: Make a healthy picnic Understand the basic principles of a healthy diet and that everyone should eat at least five portions of fruit and vegetables every day Name and sort foods into the five groups in 'The Eatwell plate' Understand that all food comes from plants or animals		**Outcome: Make a stew** Build on their food vocabulary acquired in key stage 1 by increasing their sensory vocabulary and knowledge around how foods feel, smell and taste Make healthy eating choices from an understanding of a balanced diet when designing their product. Know that to be active and healthy, food and drink are needed to provide energy for the body			**Outcome: Islamic dish** Use scales to measure accurately Cut and shape ingredients using appropriate tools and equipment Decorate dishes based on knowledge of simple ingredients used to decorate dishes Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).

Understand that food has to be farmed, grown elsewhere (e.g. home) or caught Develop a food vocabulary using taste, smell, touch and texture Grate and chop a range of ingredients Measure and weigh food items using non-statutory measures such as cups Demonstrate how to work safely and hygienically Assemble or cook ingredients.		Say how and why they need to work safely and hygienically by providing examples they have used when preparing the food using utensils Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Understand seasonality and which products can be grown locally and which can't. Know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world Measure ingredients to the nearest gram accurately. Follow a recipe and assemble or cook ingredients			Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Create and refine recipes, including ingredients, methods Know that seasons may affect the food available Know how food is processed into ingredients that can be eaten or used in cooking

Make: Mechanisms					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Outcome: Create a moving picture Create a mechanism using a lever Use the lever to move a picture	**Outcome: Create a pulley** Build on their scientific knowledge of the transference of forces in year 3 to choose appropriate mechanisms for a product Draw on their knowledge of pulley systems to solve a problem to demonstrate how the Egyptians made it easier to lift rocks using pulleys Build a wooden frame and strengthen this with diagonal struts Measure, mark and cut the wood to 1cm Attach and construct the pulley system			**Outcome: Create a Hull Fair ride using cams** Build frameworks using a range of material to support mechanisms Know how mechanical systems such as cams or and gears create movement Convert rotary motion to linear using cams

Make: Textiles					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Outcome: Create a textile square to represent The Great Fire of London		**Outcome: Create a Roman Toga or a stola**	**Outcome: Headscarf**	

	Measure and cut textiles accurately to make a product. Join textiles together using a running stich		Join textiles neatly using basic stitch techniques (running, back and over sewing) Decorate using cross stitch Explore fastening and recreate some e.g. sew on buttons and create loops	Join fabrics by pinning and tacking pieces together Stitch using a range of stitches including blanket stitch Create objects that employ a seam allowance Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).	

Make: Structures					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Outcome: Make a dolls house Build on their scientific knowledge of properties of materials to choose			**Outcome: Make a bridge** Cut wood using a hacksaw	**Outcome: Build a model of a flood proof house.** Test a range of materials for strength	

appropriate materials for their house Measure and mark out materials to be cut using a template Join materials to make a 3D house using glue and tape Cut materials safely using tools provided. Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling) to make a product stronger			Glue wood to strengthening corners Measure and mark out to the nearest centimetre. Demonstrate a range of joining techniques (such as gluing or combining materials to strengthen). Use wood to practise drilling, screwing, gluing and nailing materials to make products	Test a range of materials for absorbency Test resistance to wind as well as flooding Measure and mark out to the nearest millimetre Explore shell and frame structures Develop ideas on how to use modelling materials to represent 'real-life' products e.g. lolly sticks represent planks of wood Explore how to join materials together in the most effective way e.g. string, sellotape, masking tape, elastic bands, metal fastenings, glue gun, glue etc) Make design decisions, taking account of constraints resources, costs and sustainability	

Evaluate					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
I am beginning to explore and verbally evaluate a range of existing products by evaluating the product against the purpose I can say whether my products match the design criteria's I can evaluate my designs and products by saying how well they do the job they were designed for I can say what I like about my products	I can explore and evaluate a range of existing products by looking at function and materials I can evaluate my ideas and products against set design criteria. I can say what was the best feature of my products I can say what I would do to improve the products further	I can investigate and analyse an existing product by identifying whether it is fit for purpose and how easy it is to use. I can prove that my design meets some set criteria's and evaluate how well it works	I can explain why certain materials were used to make existing products I can evaluate and suggest improvements for my design. I can identify strengths and areas for development in my product	I can explain how sustainable the materials in products are and what impact products have beyond their intended purpose I can evaluate the appearance and function of my product against the original criteria. I am able to justify decisions made during the design process	I can critically evaluate the quality of the design, manufacture and fitness for purpose by comparing existing products I can evaluate my ideas and products against my own design criteria and consider the views of others to improve my work