CLAYTON ST JOHN
C of E PRIMARY SCHOOL

Design and Technology Curriculum Making Document

Design and Technology Long Term Plan

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	Autumn Term	Spring Term	Spring Term (DT Day)	Summer Term	Summer Term (DT Day)
Nursery	My Friend Bear Let's Celebrate Together	Down on the Farm New Life Is Everywhere		All Around the World Everyday Superheroes.	
Reception	I can see a rainbow Super you, Super me!	Frozen planet Off we go!		Once upon a time Sailing the Seven seas	
Year 1	**Puppets** Textiles	**Smoothies** Cooking and Nutrition	**Constructing a windmill** Structures	**Wheels and Axles** Mechanisms/Mechanical Systems	**Constructing a moving storybook** Mechanisms
Year 2	**Pouches** Textiles	**Balanced Diet** Cooking and Nutrition	**Baby Bears Chair** Structures	**Fairground** Mechanisms/Mechanical Systems	**Making a moving monster** Mechanisms
Year 3	**Cushions** Textiles	**Eating Seasonally** Cooking and Nutrition	**Constructing a castle** Structures	**Pneumatic Toys** Mechanisms/Mechanical Systems	**Wearable technology** Digital World
Year 4	**Fastenings** Textiles	**Adapting a Recipe** Cooking and Nutrition	**Pavilions** Structures	**Making a Slingshot Car** Mechanisms/Mechanical Systems	**Mindful moments timer** Digital World
Year 5	**Stuffed Toys** Textiles	**Developing a Recipe** Cooking and Nutrition	**Bridges** Structures	**Pop Up Book** Mechanisms/Mechanical Systems	**Doodlers** Electrical Systems
Year 6	**Waistcoats** Textiles	**Come Dine with Me** Cooking and Nutrition	**Playground** Structures	**Automata Toys** Mechanisms/Mechanical Systems	**Steady Hand game** Electrical Systems

Progression in Substantive Knowledge								
	Nursery	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Cooking and Nutrition - Technical	Cooking and Nutrition Explore a range of tools in the dough area, such as rolling pins, cutters, dough wheels. Begin to explore some familiar foods in the role play area when playing. Wash my hands independently when prompted to do so. Use a knife to spread and a spoon to stir with increased independence. Attempt to peel my own fruit e.g. satsuma, banana. Show increased strength and control when using a rolling pin and dough cutter.	Cooking and Nutrition Begin to understand the need for hygiene when taking part in food experiences. Stir with a spoon and spread with a knife independently. Sort healthy foods from less nutritional food. Understand that some foods are healthier than others and give some examples.	To understand the difference between fruits and vegetables. To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). To know that a blender is a machine which mixes ingredients together into a smooth liquid. To know that a fruit has seeds and a vegetable does not. To know that fruits grow on trees or vines. To know that vegetables can grow either above or below ground. To know that vegetables can come from different parts of the plant.	To know that 'diet' means the food and drink that a person or animal usually eats. To understand what makes a balanced diet. To know where to find the nutritional information on packaging. To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. To know that nutrients are substances in food that all living things	To know that not all fruits and vegetables can be grown in the UK. To know that climate affects food growth. To know that vegetables and fruit grow in certain seasons. To know that cooking instructions are known as a 'recipe'. To know that imported food is food that has been brought into the country. To know that exported food is food that has been sent to another country. To understand that imported foods travel from far away and this can negatively impact the environment. To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre.	To know that the amount of an ingredient in a recipe is known as the 'quantity'. To know that it is important to use oven gloves when removing hot food from an oven. To know the following cooking techniques: sieving, creaming, rubbing method, cooling. To understand the importance of budgeting while planning ingredients for biscuits.	To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by substituting ingredients. To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.	To know that 'flavour' is how a food or drink tastes. To know that many countries have 'national dishes' which are recipes associated with that country. To know that 'processed food' means food that has been put through multiple changes in a factory. To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).

					To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. To know safety rules for using, storing and cleaning a knife safely. To know that similar coloured fruits and vegetables often have similar nutritional benefits.			

Mechanisms and Mechanical Systems - Technical	Mechanisms Explore a variety of toys showing interest in how they move. (Flaps, doors, leavers. Create a simple moving vehicle out of Mobilo.	Mechanisms Use a variety of construction toys that have wheels in them to create a vehicle that can move. Use simple construction with wheels and axels to create a moving vehicle with support. Make a moving vehicle using a range of construction independently.	To know that wheels need to be round to rotate and move. To understand that for a wheel to move it must be attached to a rotating axle. To know that an axle moves within an axle holder which is fixed to the vehicle or toy. To know that the frame of a vehicle (chassis) needs to be balanced. To know some real-life items that use wheels.	To know that different materials have different properties and are therefore suitable for different uses. To know the features of a Ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder. To know that it is important to test my design as I go along so that I can solve any problems that may occur.	To understand how pneumatic systems work. To understand that pneumatic systems can be used as part of a mechanism. To know that pneumatic systems operate by drawing in, releasing and compressing air.	To understand that all moving things have kinetic energy. To understand that kinetic energy is the energy that something (object/person) has by being in motion. To know that air resistance is the level of drag on an object as it is forced through the air. To understand that the shape of a moving object will affect how it moves due to air resistance.	To know that mechanisms control movement. To understand that mechanisms can be used to change one kind of motion into another. To understand how to use sliders, pivots and folds to create paper-based mechanisms. To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	To understand that the mechanism in an automata uses a system of cams, axles and followers. To understand that different shaped cams produce different outputs. To know that an automata is a hand-powered mechanical toy. To know that a cross-sectional diagram shows the inner workings of a product.
Textiles - Technical	Design Select materials from a limited range that meet a simple design criteria prompted by an adult. Respond to an adult's suggestion of what to make. Has an idea of what to build before they begin. Discuss what I want to make when I am playing. Explore ideas by rearranging materials.	Design Select materials from a limited range that fit a particular criteria, such as shiny with independence. Select / plan and name the tools and resources needed e.g. scissors for paper. Explain what I am making and which materials I am using and why. Explain work as it progresses. Make Use scissors independently to cut	To know that 'joining technique' means connecting two pieces of material together. To know that there are various temporary methods of joining fabric by using staples, glue or pins. To understand that different techniques for joining materials	To know that sewing is a method of joining fabric. To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect	To know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric. To know that when two edges of fabric have been joined together it is called a seam. To know that it is important to leave space on the fabric for the seam.	To know that a fastening is something that holds two pieces of material together. To know that different fastening types are useful for different purposes. To know that creating a mock-up (prototype) of their design is useful for checking ideas and proportions.	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. To know that soft toys are often made by creating appendages separately and then	To understand that it is important to design clothing with the client/target customer in mind. To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. To understand the importance of consistently sized stitches.

	Make Use glue to join materials randomly together. Use adapted scissors with support to make snips in paper. Use tape to join things together with support. Use glue to join materials together with increasing independence. Use scissors with support to cut along a straight line. Attempt to thread a large plastic needle. Use a large plastic needle to sew with support. Evaluate Discuss some of the things that have been created when playing e.g. tower, car etc. Rebuild something when playing to improve it if it falls down or doesn't work. Discuss what has been made naming some of the resources and simple techniques used with support.	along a line. Use glue (Pritt stick and PVA) and Sellotape to join materials. Use scissors to cut out a shape with curved sides. Use a hole punch to make holes in paper. Explore other ways of joining with support, treasury tags, split pins. Use a hammer safely to hammer a nail into wood. Select my own method of joining materials. Use scissors with care to cut a variety of shapes and materials. Evaluate Discuss some of the changes made during the making process with prompts. Talk with confidence about some things that have been made naming the resources and showing some understanding of the techniques that I have used. Discuss what has been made and with prompts I am beginning to identify good points and bad points. Changes, adapts and modifies model to serve a purpose	can be used for different purposes. To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. To know that drawing a design idea is useful to see how an idea will look.	my fingers when sewing.	To understand that some products are turned inside out after sewing so the stitching is hidden.		attaching them to the main body. To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	

Progression in Substantive Knowledge								
	Nursery	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Structures - Technical	Structures Explore building towers and other structures using other kinds of construction kits with support (wooden blocks, Duplo, magnetic construction). Create towers and buildings by stacking and connecting bricks together independently	Structures Build with a variety small scale construction adapting to make them more stable. Explore and investigate a range of simple large scale construction materials, such as cardboard boxes and crates. Explore building bridges and towers using a variety of small scale construction materials, blocks, Lego, cardboard. Structures Build with a variety small scale construction adapting to make them more stable.	To understand that the shape of materials can be changed to improve the strength and stiffness of structures. To understand that cylinders are a strong type of structure. To understand that axles are used in structures and mechanisms to make parts turn in a circle. To begin to understand that different structures are used for different purposes. To know that a structure is something that has been made and put together.	To know that shapes and structures with wide, flat bases or legs are the most stable. To understand that the shape of a structure affects its strength. To know that materials can be manipulated to improve strength and stiffness. To know that a structure is something which has been formed or made from parts. To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. To know that a 'strong' structure is one which does not break easily. To know that a 'stiff' structure is one which does not bend easily.	To understand that wide and flat objects are more stable. To understand the importance of strength and stiffness in structures.	To understand what a frame structure is. To know that a 'free-standing' structure is one which can stand on its own.	To understand some different ways to reinforce structures. To understand how triangles can be used to reinforce bridges. To know that properties describe the form and function of material. To understand why material selection is important based on properties. To understand the material (functional and aesthetic) properties of wood.	To know that structures can be strengthened by manipulating materials and shapes.

Digital World – Technical					To understand that, in programming a 'loop' is cod that repeats something until stopped. To know that a 'Micro:bit is a pocket-sized, codeable computer. To know that a simulator is able to replicate the functions of an existing piece of technology.	To know what variables are in programming. To know some features of a Micro:bit. To know that an algorithm is a set of Instructions to be followed by the computer. To know that it is important to check code for errors (bugs). To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device.		
Electrical Systems - Technical					To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit. To understand the common features of an electric product. To list examples of common electric products. To understand that an electric product uses an electrical system to work. To know the name and appearance of a bulb, battery, battery	To understand that electrical conductors are materials which electricity can pass through. To understand that electrical insulators are materials which electricity cannot pass through. To know that a battery contains stored electricity that can be used to power products. To know that an electrical circuit must be complete for electricity to flow.	To know that series circuits only have one direction for the electricity to flow. To know that when there is a break in a series circuit, all components turn off. To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. To know a motorised product is 1 which uses a motor to function.	To know that batteries contain acid, which can be dangerous if they leak. To know the names of the components in a basic series circuit including a buzzer. (Link to Y6 Science)

					holder and crocodile wire to build simple circuits. (Link to Y3 Science)	To know that a switch can be used to complete and break an electrical circuit. (Link to Y4 Science)		

This document is taken directly from the Kapow progression strands.