Year 4 DT Skills and Knowledge Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Ancient Greece	Digestive System	Roman Empire		Electricity	Comparing Stockport/Naples
National Curriculum Learning Intentions	Evaluate - investigate and analyse a range of existing products; • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work; • understand how key events and individuals in design and technology have helped shape the world Technical Knowledge - apply their understanding of how to strengthen, stiffen and reinforce more complex structures; • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]; • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]; • apply their understanding of computing to program, monitor and control their products. Cooking and Nutrition - understand and apply the principles of a healthy and varied diet; • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques; • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.					
Designing	Design - 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; • generate, develop, model and communicate their ideas through discussion, annotated sketches make design decisions that take account of the availability of resources					
Making	Make - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately; • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Order the main stages of making Measure, mark out, cut and shape materials and components with some accuracy Assemble, join and combine materials with some accuracy					
DT Units	Juggling Balls		The Great Bread Bake off		Battery Operated Lights	
Technical Knowledge	• that a single fabric shape can be used to make a 3D textiles product • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics		• that food ingredients can be fresh, pre-cooked and processed		• how simple electrical circuits and components can be used to create functional products (See Science) # • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking	
Cooking and Nutrition Key Knowledge			• that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • 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 • how to prepare and cook bread safely and hygienically including, where appropriate, the use of a heat source			

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Key Skills	Analyse and test a range of existing products. Develop a design aimed at particular individuals or groups. Explain why different fabric decoration techniques have been chosen. With some independence, use a running stitch, whipstitch explaining why these methods are suitable for the task	Use their experiences of food ingredients and cooking methods to help generate ideas. Explain why they have chosen certain foods and processes and link them to their design criteria. Produce an order of work which includes an annotated diagram and chosen equipment appropriately. Make and evaluate their bread product against objective design criteria.	Name some key events and individuals that have helped shape the world of lighting. Explore and make a series and parallel circuit, diagnosing faults when necessary, and follow instructions to make a selection of different switches. Draw a design which uses annotations to add some detail. Develop design criteria to inform the design of innovative products considering the purpose and target group/individual. Make a well finished product considering the aesthetic and functional qualities. Use design criteria to help develop their own questions and use the answers to help guide the evaluation process.
Learning Intentions	To investigate and evaluate juggling balls. To follow a design criteria to help me create and communicate my ideas. To perform tie-dye as a technique for decorating my fabric. To research and trial different fillings for my juggling ball and decide upon the most functional one. To cut around a template and use a running stitch to create a hem. To use a functional technique to carefully decorate my fabric. To join my juggling ball using an appropriate stitch to create my finished shape. To evaluate my product.	To find out about important people and events in the past that have shaped the way bread is made and sold today. To investigate and analyse existing products according to their characteristics. To develop a design criteria. To shape dough. To think of original ideas for a product based on my design criteria. To develop designs based on my design criteria and clearly communicate my final design. To select ingredients and kitchen equipment to help me follow a bread making recipe. To knead and bake.	To explain how key events and individuals in design and technology have helped shape the world. To make and represent different types of circuits. To make and use switches. To develop design criteria and a design. To develop and communicate a design for my light. To select materials and components to make my light. To create a well-finished product. To complete a detailed evaluation of my finished product.
Resources	Examples of juggling balls A selection of different coloured dyes	Different types of Warburtons bread: Milk Roll, Toastie, Seeded Batch, Fruit Loaf with Orange. Prior to the lesson use the Salt Dough Recipe to make a batch of salt dough.	Bulbs, Bulb holders, Batteries, Battery holders, Insulated wire with crocodile clips on the end
	Elastic bands/hair bobbles/string Pipettes/squirting bottles Tie-dye kit Table coverings, paint shirts, plastic gloves. Prewashed, white cotton fabric pieces cut to roughly 30cm x 15 cm pieces. Dried tie-dyed fabric from previous lesson Elastic bands or hair bobbles and old children's socks - 1 per child Fillings: Dried beans, lentils, rice and sand. Sewing equipment A4 paper, templates, needles, pins and sewing thread. Children will need their piece of tie-dyed, shaped and hemmed fabric. Fabric paints/pens, fine paint brushes, paint shirts. Prepared piece of fabric - 1 per child Needles and threads Fillings and paper funnels	Scale the recipe up as required. A selection of ingredients: Sweet: raisins, mixed dried fruit, cinnamon, banana, apple, honey, zest from citrus fruit, ginger, chocolate. Savoury: cheese, sundried tomatoes, dried herbs, onion, potato, cumin, curry powder, olives, sweet peppers, garlic seeds. A3 paper. Kitchen equipment: baking trays, weighing scales, sieves, mixing bowls, measuring spoons, measuring jugs, oven gloves, cooling racks. Ingredients for Bread Rolls Recipe. A selection of ingredients for adding to the bread based on the children's final design choices. (Note this session will be a long one due to proving and cooking time needed as well as judging.)	Materials for Switches (Foil, Coins, Wires , Bulbs, Split pins, Paper clips, Plastic, Cardboard, Scissors, Pegs, Bulbs, Bulb holders, Batteries, Battery holders, Wires. Materials collected as part of the homework task Materials and equipment (bulbs, bulb holders, a range of shapes and sizes of batteries and battery holders, paperclips, split pins, a range of cardboard cylinders, a range of other small cardboard boxes, a range of small plastic bottles, stiff/ corrugated card, plastic, sticky/masking tape, PVA glue, thin wooden strips, bubble wrap) Tools: scissors, rulers, pencils Materials and Equipment (Bulbs, bulb holders, thin insulated wire with crocodile clips at either end, foil, clear film, tracing paper, coloured paper, coloured cardboard, stickers, string, straws, small buttons, pencils, felt tips) Tools:scissors, rulers

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Vocabulary	Explore, textiles, evaluate, interpret, product, analysis, star profile, user, and design, brief. Design criteria, annotate. Tie-dye, technique, Cut, shape, functional, hem, template, stitch. Shape, join, aesthetic, evaluate, test.	Design, brand, industry. Product, market research. texture, appearance, flavour. Product, market research, design criteria, shape, knot. Ingredients, yeast, knead, dough, rise.	STEM, science, design and technology, engineering, mathematics, chronological, events, individuals, changing, inventors. Mains, battery, operated, energy, electricity, conductor, insulator, connect, series, fault, parallel, circuit, components, symbol, electrical systems, design brief. path, current, switch, turn switch, micro switch, connect, Functional, aesthetic, finished, quality, assemble, evaluate, specification, design criteria.