Design and Technology – Long Term Plan

Year group	Autumn		Spring		Summer	
Seedlings (N2)	**Exploring Blocks**	**Tasting food**	**Exploring tools**	**Using glue**	**Exploring Materials**	**Large blocks**
	Explore a range of different blocks learning how these can connect together or be stacked for a purpose.	Exploring a rage of different fruits and vegetables and developing an understanding of taste and texture.	Exploring a range of different tools in playdough which can be used to cut, mould and print.	Exploring how glue can be used to join paper and card together.	Exploring a range of different materials and learning about texture.	Exploring a range of large wooden and soft play blocks and learning how shapes can be used to build different structures.
Acorns (N3)	**Manipulating paper**	**Exploring materials**	**Exploring Buildings**	**Where food comes from**	**Exploring media**	**Scissor skills**
	Exploring how paper can be manipulated by folding to make different shapes.	Exploring different materials and talking about how these can be manipulated to make different things.	Exploring different building though the story 'The three little pigs' and the materials/ shapes these are made out of.	Learning about different fruit and vegetables and how these are grown and then transported to our supermarkets.	Exploring different ways of using materials for different effects	Developing our use of scissors and understanding that these can be used to cut different materials.
Reception	**Threading**	**Weaving**	**Scissor skills**	**Growing our own food**	**Joining Techniques**	**Junk modelling**
	Exploring how different objects with holes can be threaded onto materials.	Exploring how materials can be manipulated to weave them in and out of each other.	Developing our scissor skills to cut with more accuracy.	Learning how to prepare, grow and harvest own food. Using tools to cut and prepare food.	Using a range of techniques to join materials together including glue, sellotape, paper clips and elastic bands.	Using a range of media and material to design and create something for a purpose.
Year 1	**Mechanisms: Wheels and axles**	**Textiles: Hand puppet**	**Mechanisms: Moving story book**	**Food: Fruit and vegetables**	**Structures: Constructing a windmill**	
	Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle	Explore methods of joining fabric. Design and make a character-based hand puppet using a preferred joining	Explore slider mechanisms and the movement they output, to design, make and evaluate a moving	Learn to distinguish between fruit and vegetables and where they grow. Design a fruit and vegetable	Inspired by the song, 'Mouse in a windmill', design and construct a windmill for a client (mouse) to live in. Explore various types of windmill, how they work and their key features.	

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	holders work. Design and make a moving vehicle.	technique, before decorating.	storybook from a range of templates.	smoothie and accompanying packaging.		
Year 2	**Food: A balanced Diet**	**Textiles: Pouches**	**Mechanisms: Fairground wheel**	**Mechanisms: Making a moving monster**	**Structures: Baby bears chair**	
	Learn about the food groups (carbohydrates, proteins, fruits and vegetables, dairy, oils and spreads) to understand a balanced diet to develop a healthy wrap.	Learn how to sew a running stitch ready to design, make and decorate a pouch using a template.	Design and create a functional Ferris wheel, learn how different components fit together so that the wheel rotates and the structure stands freely.	Explore levers, linkages and pivots through existing products and experimentation, use this research to construct and assemble a moving monster.	Explore stability and methods to strengthen structures, to understand Baby Bear's chair weaknesses and develop an improved solution for him to use.	
Year 3	**Mechanical systems: Pneumatic toys**	**Textiles – Cushion**	**Digital world- Electronic charm**	**Structures - Castle**	**Electrical systems**	**Food- Eating seasonally**
	Explore pneumatic systems, then apply this understanding to design and make a pneumatic toy including thumbnail sketches and exploded diagrams.	Learn and apply two new sewing techniques – cross-stitch and appliqué.	Design, develop a program, house and promote a Micro:bit electronic charm to use in low-light conditions.	Identify and learn about the key features of a castle, before designing and making a recycled-material castle (structure).	Introduces children to various forms of 'Information design' before they are briefed to develop an electric museum display.	Learn about various fruits and vegetables, and when, where and why they are grown in different seasons. Discover the relationship between colour and health benefits.
Year 4	**Food – Adapting a recipe**	**Textiles - Fastenings**	**Structure- Pavilions**	**Mechanical systems- Making a slingshot car**	**Digital world – Mindful moments timer**	**Electrical systems- Torches**
	Work in groups to adapt an existing biscuit recipe, whilst taking into account the cost of the ingredients and other	Analyse and evaluate a range of existing fastenings, then devise a list of design criteria to	Investigate and model frame structures to improve their stability, then apply this research to design and create a	Using a range of materials, design and make a car with a working slingshot mechanism and house	Explore what is meant by mindfulness and write design criteria to fulfil a brief to develop a programmed product for	Identify the difference between electrical and electronic products. Evaluate a range of existing torches and

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	expenses against a set budget.	design, generate templates and make.	stable, decorated pavilion.	the mechanism using a range of nets.	timing a mindful moment.	their features, then develop a new functional torch design.
Year 5	**Structure- Bridges**	**Textiles- Stuffed toys**	**Electrical systems- Doodlers**	**Digital world- Monitoring devices**	**Mechanical systems – Pop-up book**	**Food – What could be healthier?**
	Test and analyse various types of bridge to determine their strength and stability. Explore material properties and sources, before marking, sawing and assembling a wooden truss bridge.	Design a stuffed toy and make decisions on materials, decorations and attachments (appendages), after learning how to sew a blanket stitch.	Our Doodlers unit explores series circuits further and introduces motors. Explore how the design cycle can be approached at a different starting point, by investigating an existing product, which uses a motor, to encourage pupils to problem-solve and work out how the product has been constructed, ready to develop their own.	Apply Computing knowledge and understanding to program a Micro: bit animal monitoring device. Develop 3D CAD skills by learning how to navigate the Tinkercad interface and essential tools to combine multiple objects.	Create a functional four-page pop-up storybook design, using lever, sliders, layers and spacers to create paper-based mechanisms.	Discover the farm to fork process, understand the key welfare issues for rearing cattle. Compare the nutritional value of existing sauces and develop a healthier recipe.
Year 6	**Food – Come dine with me**	**Textiles – Decoration**	**Electrical systems – Steady hand game**	**Digital world – Navigating the world**	**Structures - Playgrounds**	**Mechanical systems – Automata toys**
	Develop a three-course menu focused on three key ingredients, as part of a paired challenge to develop the best class recipes. Explore each key ingredient's farm to fork process.	Using a combination of textiles skills such as attaching fastenings, appliqué and decorative stitches, children design, assemble and decorate a decoration for a chosen purpose.	Understand what is meant by fit for purpose design and form follows function. Design and develop a steady hand game using a series circuit, including housing and backboard.	Design and program a navigation tool to produce a multifunctional device for trekkers using CAD 3D modelling software. Pitch and explain the product to a guest panel.	Research existing playground equipment and their different forms, before designing and developing a range of apparatus to meet a list of specified design criteria.	Develop a functional automata window display, to meet the requirements in a design brief. Explore and create cam, follower and axle mechanisms to mimic different movements.

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