Design and Technology Curriculum Overview
Ling Moor Priory Academy

Wisdom, Curiosity, Generosity, Courage, Passion

EMPOWERING POTENTIAL

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Design and Technology Curriculum Overview 2024-25

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EYFS and Key Stage 1			
	Autumn	**Spring**	**Summer**
EYFS	• Join materials and explore textures • Use objects and tools to print	• Draw a representation of themselves or family understanding that they need a head, arms legs etc. • To explore how red, blue and yellow can be mixed to make different colours • To use objects and tools to print with to create a pattern or image	• Use particular colours to paint pictures- e.g. green for a tree • Using different cut of materials to make a simple image • Join materials with using sellotape, glue, and split pins with support
Year 1	**Structures**-Little Pigs House	**Mechanisms-Sliders and Levers-** Great Fire of London Moving Picture Book	**Food-** Salads- Plants you can eat (Science Link) (Skills focussed-Chop, grate, snip).
Year 2	**Food-** Salad wraps- Linked to the Lighthouse Keepers Lunch	**Mechanisms-**Vehicles	**Textiles**- Embellished Sports Day T-shirts.
Lower Key Stage 2			
Year 3	**Structures**- keep safe/ Gift box	**Textiles-** Story Sacks for own books.	**Food**- Nutritious Sandwich
Year 4	**Mechanisms- Pneumatics**- Affordable Toys (with syringes)	**Food-** Nutritious Toasted Sandwich	**Electrical Systems** (Circuits and switches)- Light Box (Art Deco Sign)
Upper Key Stage 2			
Year 5	**Electrical Systems-** Crumble- Entertainment (Fairground toy)	**Structures**- Bird Boxes	**Food-** South American Food at NK School
Year 6	**Mechanisms-** Cam Toys	**Food**- Great British Bake Off	**Textiles**- Sustainable Bags

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DT Overview Skills Progression

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Key stage 1				
Year 1				
	Key Learning	**Links to topics and themes**	**Key Vocabulary**	**Potential Subject Links**
Autumn **Structures**-Little Pigs House	**Prior learning** • Experience of using construction kits to build walls, towers and frameworks. • Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. • Experience of different methods of joining card and paper. **Designing** • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings. **Making** • Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. • Use simple finishing techniques suitable for the structure they are creating. **Evaluating** • Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. **Technical knowledge and understanding** • Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.	Traditional Tales Nursery Rhymes Buildings Healthy living Farming Our School Myself Animals Parks and Playgrounds	cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function	**Mathematics** – use appropriate standard and non-standard measures. Recognise and name common 2-D and 3-D shapes. **Science** – think about the properties of materials that make them suitable or unsuitable for particular purposes. **Spoken language** – ask relevant questions to extend their knowledge and understanding. Build technical vocabulary. **Art and design** – use colour, pattern, line, shape. Use and develop drawing skills.

Spring **Mechanisms-Sliders and Levers-** Great Fire of London Moving Picture Book	**Prior learning** • Early experiences of working with paper and card to make simple flaps and hinges. • Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape. **Designing** • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through drawings and mock-ups with card and paper. **Making** • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating. **Evaluating** • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. **Technical knowledge and understanding** • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project.	Festivals and Celebrations Traditional Tales Nursery Rhymes history-based topic geography-based topic science-based topic	slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function	**Spoken language** – children listen and respond appropriately to adults. Ask relevant questions to extend their knowledge and understanding. Build technical and directional vocabulary. **Mathematics** – describe position, direction and movement. Use appropriate standard and non- standard measures. **Art and design** – use colour, pattern, line, shape. **Computing** – digital graphics and text could be incorporated into final products as the background or moving parts.
Summer **Food-** Salads- Plants you can eat (Science Link) (Skills focussed-Chop, grate, snip).	**Prior learning** • Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell. • Experience of cutting soft fruit and vegetables using appropriate utensils. **Designing** • Design appealing products for a particular user based on simple design criteria.	Healthy Eating Festivals and Celebrations Teddy Bear Picnic Food and Farming Ourselves Senses Growing	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard	**Spoken language** – ask questions to develop and check understanding, develop technical and sensory vocabulary and build knowledge. **Art and design** – use and develop drawing skills.

	• Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. • Communicate these ideas through talk and drawings. **Making** • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. **Evaluating** • Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. **Technical knowledge and understanding** • Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical and sensory vocabulary relevant to the project.		flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria	**Writing** – children write a simple account about how they made their food product. **Writing** – instructions on how to use one of the utensils; how to prepare e.g. a fruit for eating. **Computing** – use digital photographs to help order the main stages of making and support children's writing. **Science** – talk about a balanced diet, different types of food and hygiene.

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Key stage 1				
Year 2				
	Key Learning	**Links to topics and themes**	**Key Vocabulary**	**Potential Subject Links**
Autumn **Food-** Salad wraps- Linked to the Lighthouse Keepers Lunch	**Prior learning** • Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell. • Experience of cutting soft fruit and vegetables using appropriate utensils. **Designing** • Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. • Communicate these ideas through talk and drawings. **Making** • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. **Evaluating** • Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. **Technical knowledge and understanding** • Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical and sensory vocabulary relevant to the project.	Healthy Eating Festivals and Celebrations Teddy Bear Picnic Food and Farming Ourselves Senses Growing	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria	**Spoken language** – ask questions to develop and check understanding, develop technical and sensory vocabulary and build knowledge. **Art and design** – use and develop drawing skills. **Writing** – children write a simple account about how they made their food product. **Writing** – instructions on how to use one of the utensils; how to prepare e.g. a fruit for eating. **Computing** – use digital photographs to help order the main stages of making and support children's writing. **Science** – talk about a balanced diet, different types of food and hygiene.
Spring **Mechanisms-**Vehicles	**Prior learning** • Assembled vehicles with moving wheels using construction kits. • Explored moving vehicles through play.	People Who Help Us Our Local Community	vehicle, wheel, axle, axle holder, chassis, body, cab	**Science** – working scientifically: ask simple questions and observe closely. Explore use of everyday materials.

	• Gained some experience of designing, making and evaluating products for a specified user and purpose. • Developed some cutting, joining and finishing skills with card. **Designing** • Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups. **Making** • Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. • Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. **Evaluating** • Explore and evaluate a range of products with wheels and axles. • Evaluate their ideas throughout and their products against original criteria. **Technical knowledge and understanding** • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	Traditional Stories Fairy Tales Farming and food Helping others Transport Nursery Rhymes Toys	assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	**Mathematics** – number of wheels, more than, less than, equal. **Spoken Language** – use of technical vocabulary. Ask relevant questions to extend understanding and build vocabulary and knowledge.
Summer **Textiles-** Sports Day Shirts	**Prior learning** • Explored and used different fabrics. • Cut and joined fabrics with simple techniques. • Thought about the user and purpose of products. **Designing** • Design a functional and appealing product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology. **Making**	Toys Festivals Stories Nursery Rhymes Celebrations Homes Sports Day Teamwork Family	names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function	**Spoken language** – ask relevant questions to build understanding and their vocabulary. **Art and design** – quick drawings or detailed observational drawings of one product to develop and share ideas. **Science** – everyday materials. Investigate physical properties of fabric types against suitability for the product to be made.

	• Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. **Evaluating** • Explore and evaluate a range of existing textile products relevant to the project being undertaken. • Evaluate their ideas throughout and their final products against original design criteria. **Technical knowledge and understanding** • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the project.			

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Lower key stage 2				
Year 3				
	Key Learning	**Links to topics and themes**	**Key Vocabulary**	**Potential Subject Links**
Autumn **Structures**- Keep safe/ Gift box.	**Prior learning** • Experience of using different joining, cutting and finishing techniques with paper and card. • A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science. **Designing** • Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. **Making** • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, and shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating. **Evaluating** • Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. **Technical knowledge and understanding** • Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Know and use technical vocabulary relevant to the project.	Shape and Space Going Green Festivals Celebrations Healthy Eating Our School other – specify Toys and Games	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype	**Science** – discuss the properties and suitability of materials for particular purposes. **Mathematics** – compare and sort common 2-D and 3-D shapes in everyday objects. Recognise 3-D shapes in different orientations and describe them. **Spoken language** – ask relevant questions to extend knowledge and understanding. Build their technical vocabulary. **Computing** – design and create digital content on screen, creating nets for their products and combining text with graphics.

Spring **Textiles-** Story Sacks/ Book Bags	**Prior learning** • Have joined fabric in simple ways by gluing and stitching. • Have used simple patterns and templates for marking out. • Have evaluated a range of textile products. **Designing** • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. **Making** • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. **Evaluating** • Investigate a range of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user. • Take into account others' views. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. **Technical knowledge and understanding** • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.	Celebrations Festivals Make Do and Mend Holidays Sustainability Containers	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	**Science** – physical properties of fabrics. **Spoken language** – asking and answering questions to develop understanding. Through discussion, participate actively initiating and responding to comments. **Mathematics** – nets of shapes and accurate measurements mm/cm. **History** – investigating textiles and textile products from age being studied. **Art and design** – investigating visual and tactile qualities of fabrics and using colour and pattern appropriately. **Computing** – opportunity to create pattern pieces using a computer program.

Summer **Food**- Nutritious Sandwich	**Prior learning** • Know some ways to prepare ingredients safely and hygienically. • Have some basic knowledge and understanding about healthy eating and *The eatwell plate.* • Have used some equipment and utensils and prepared and combined ingredients to make a product. **Designing** • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. **Making** • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. **Evaluating** • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. **Technical knowledge and understanding** • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	Stories Picnics Healthy Eating School Fair Religious Festival Eco-Fair/Green Days Cultural Focus day	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	**Mathematics and computing** – making use of mathematical and computing skills to present results of sensory evaluations graphically. **Spoken language** – developing relevant vocabulary e.g. sensory descriptors. Ask relevant questions to extend their knowledge. **Science** – using and developing skills of observing and questioning. Humans get nutrition from what they eat. Discuss changes of state if heat is used.

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Lower key stage 2				
Year 4				
	Key Learning	**Links to topics and themes**	**Key Vocabulary**	**Potential Subject Links**
Autumn **Mechanisms- Pneumatics**- Affordable Toys (with syringes)	**Prior learning** • Explored simple mechanisms, such as sliders and levers, and simple structures. • Learnt how materials can be joined to allow movement. • Joined and combined materials using simple tools and techniques. **Designing** • Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. **Making** • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. • Select from and use finishing techniques suitable for the product they are creating. **Evaluating** • Investigate and analyse books, videos and products with pneumatic mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. **Technical knowledge and understanding** • Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the project.	Toys and Games Our Community Forces and Movement Mini-enterprise	components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate	**Spoken language** – participate in discussion and evaluation of examples of products that use pneumatics. Ask relevant questions to extend knowledge and understanding. Build technical vocabulary. **Science** – identify and compare the suitability of a variety of everyday materials for particular uses. **Mathematics** – measure, compare, add and subtract: lengths, volume and capacity.

Spring **Food-** Nutritious Toasted Sandwich	**Prior learning** • Know some ways to prepare ingredients safely and hygienically. • Have some basic knowledge and understanding about healthy eating and *The eatwell plate.* • Have used some equipment and utensils and prepared and combined ingredients to make a product. **Designing** • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. **Making** • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. **Evaluating** • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. **Technical knowledge and understanding** • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	Stories Picnics Healthy Eating School Fair Religious Festival Eco-Fair/Green Days Cultural Focus day	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	**Mathematics and computing** – making use of mathematical and computing skills to present results of sensory evaluations graphically. **Spoken language** – developing relevant vocabulary e.g. sensory descriptors. Ask relevant questions to extend their knowledge. **Science** – using and developing skills of observing and questioning. Humans get nutrition from what they eat. Discuss changes of state if heat is used.

Summer **Electrical Systems** (Circuits and switches)- Light Box (Art Deco Sign)	**Prior learning** • Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers. • Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue. **Designing** • Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. **Making** • Order the main stages of making. • Select from and use tools and equipment to cut, shape, join and finish with some accuracy. • Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. **Evaluating** • Investigate and analyse a range of existing battery-powered products. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. **Technical knowledge and understanding** • Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project.	Homes Travel and Holidays Emergency Vehicles School Enterprise Light and Dark Cities Business	series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function, prototype, design criteria, innovative, appealing, design brief	**Science** – know how to construct simple series circuits and have a basic understanding of conductors, insulators and open and closed switches. **Spoken language** – participate in discussion and evaluation of battery-powered products. Ask relevant questions to extend knowledge and understanding. Build their technical vocabulary. **Computing** – design, write and debug programs that accomplish specific goals, including controlling physical systems. **Art and design** – investigating visual qualities of Art Deco and use colour and pattern appropriately.

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Upper key stage 2				
Year 5				
	Key Learning	**Links to topics and themes**	**Key Vocabulary**	**Potential Subject Links**
Autumn **Electrical Systems-** Crumble-Entertainment (Fairground toy)	**Prior learning** • Initial experience of using computer control software and an interface box, a standalone box or microcontroller, e.g. Crumble. • Some experience of writing and modifying a program to make a light turn on or flash on and off. • Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. **Designing** • Develop a design specification for a functional product that responds automatically to changes in the environment. • Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. **Making** • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. • Create and modify a computer control program to enable their electrical product to respond to changes in the environment. **Evaluating** • Continually evaluate and modify the working features of the product to match the initial design specification. • Test the system to demonstrate its effectiveness for the intended user and purpose. **Technical knowledge and understanding**	Our School Toys and Games Keep Safe Ourselves Culture and Leisure Travel Homes Buildings	reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit function, innovative, design specification, design brief, user, purpose	**Science** – apply knowledge and understanding of circuits, switches, conductors and insulators. **Computing** – design, write and debug programs that accomplish specific goals, including controlling physical systems. Use sequence, selection, and repetition in programs. Work with variables and various forms of input and output. **Mathematics** – apply understanding and skill to carry out accurate measuring using standard units i.e. cm/mm. **Spoken language** – asking questions to check understanding, develop technical vocabulary and build knowledge.

	• Understand and use electrical systems in their products. • Understand the use of computer control systems in products. • Apply their understanding of computing to program, monitor and control their products. • Know and use technical vocabulary relevant to the project.			
Spring **Structures**- Bird Boxes	**Prior learning** • Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. • Basic understanding of what structures are and how they can be made stronger, stiffer and more stable. **Designing** • Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. **Making** • Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Use finishing and decorative techniques suitable for the product they are designing and making. **Evaluating** • Investigate and evaluate a range of existing frame structures. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.	Shape and Space Festivals Celebrations Our School Toys and Games Outdoors Our Local Community Weather Countries and Cultures	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent. design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional	**Science** – compare and group together everyday materials on the basis of their properties. **Mathematics** – identify 3-D shapes, including cubes and other cuboids, from 2-D representations. **Spoken language** – ask relevant questions, formulate and express opinions, give well- structured descriptions and explanations. Use relevant strategies to build their vocabulary. **Computing** – use technologies for research purposes and be discerning when evaluating digital content.

	• Research key events and individuals relevant to frame structures. **Technical knowledge and understanding** • Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project.			
Summer **Food-** Mexican Food at NK School	**Prior learning** • Have knowledge and understanding about food hygiene, nutrition, healthy eating, and a varied diet. • Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing, and combining ingredients. **Designing** • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. **Making** • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose. **Evaluating** • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.	Festivals Celebrations Sustainability Cultures/Celebrating Diversity Special Events Seasons Food Our Local Community	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	**Mathematics and computing** – making use of mathematical and computing skills to present results of sensory evaluations graphically, handling and interpreting data. **Spoken language** – developing relevant vocabulary including sensory descriptors. Give well-structured explanations. **Science** – using and developing skills of observing, questioning, changing state of ingredients. **Geography** – distribution of natural resources i.e. food. **Computing** – use technology purposefully to retrieve digital content.

	• Understand how key chefs have influenced eating habits to promote varied and healthy diets. **Technical knowledge and understanding** • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.			

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Upper key stage 2				
Year 6				
	Key Learning	**Links to topics and themes**	**Key Vocabulary**	**Potential Subject Links**
Autumn **Mechanisms-** Cam Toys	**Prior learning** • Experience of axles, axle holders and wheels that are fixed or free moving. • Basic understanding of different types of movement. • Experience of cutting and joining techniques with a range of materials including card, plastic and wood. • An understanding of how to strengthen and stiffen structures. **Designing** • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **Making** • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. **Evaluating** • Compare the final product to the original design specification. • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project.	Toys and Games Forces and Motion Festivals other – specify Our Community Mini-enterprise Celebrations	cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	**Spoken language** – ask relevant questions, formulate and express opinions, give well- structured descriptions and explanations. Listen and respond appropriately, articulate and justify answers, arguments and opinions. Consider and evaluate different viewpoints. **Computing** – use search technologies for research purposes and be discerning when evaluating digital content. **Science** – forces and movement: explore the effects of simple machines on movement. **Mathematics** – use mathematical vocabulary to describe position, direction and movement.

	Technical knowledge and understanding • Understand that mechanical systems have an input, process and an output. • Understand how cams can be used to produce different types of movement and change the direction of movement. • Know and use technical vocabulary relevant to the project.			
Spring **Food**- Great British Bake Off	**Prior learning** • Have knowledge and understanding about food hygiene, nutrition, healthy eating, and a varied diet. • Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing, and combining ingredients. **Designing** • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. **Making** • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose. **Evaluating** • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.	Festivals Celebrations Sustainability Cultures/Celebrating Diversity Special Events Seasons Food Our Local Community	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	**Mathematics and computing** – making use of mathematical and computing skills to present results of sensory evaluations graphically, handling and interpreting data. **Spoken language** – developing relevant vocabulary including sensory descriptors. Give well-structured explanations. **Science** – using and developing skills of observing, questioning, changing state of ingredients. **Geography** – distribution of natural resources i.e. food. **Computing** – use technology purposefully to retrieve digital content. **History** – investigating World War and rationing.

	• Understand how key chefs have influenced eating habits to promote varied and healthy diets. **Technical knowledge and understanding** • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.			
Summer **Textiles**- Sustainable Bags	**Prior learning** • Experience of basic stitching, joining textiles and finishing techniques. • Experience of making and using simple pattern pieces. **Designing** • Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer- aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. **Making** • Produce detailed lists of equipment and fabrics relevant to their tasks. • Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. **Evaluating** • Investigate and analyse textile products linked to their final product. • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.	Sustainability Our School Environment	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype	**Spoken language** – ask questions, formulate, articulate and justify answers, arguments and opinions. Consider and evaluate different viewpoints. **Science** – work scientifically investigating properties of fabrics. Children plan different types of scientific enquiries to answer questions. **History** – significant person/people in their locality linked to textiles and products e.g. William Morris, Amanda Wakeley. **Mathematics** – apply knowledge of how 2-D nets can be formed into 3-D shapes; apply skills of accurate measuring using standard units i.e. cm/mm. **Art and design** – investigate methods of adding colour, pattern and texture on to textiles and how to make their own textiles through weaving or felt making. **Computing** – children express themselves and develop ideas using a range of information and communication technology resources.

	• Consider the views of others to improve their work. **Technical knowledge and understanding** • A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Fabrics can be strengthened, stiffened and reinforced where appropriate.			