

Year 3			
Autumn 1	Textiles	Autumn 2	Electrical systems
	<p>Cross stitch and appliqué Cushions or Egyptian collars Pupils learn two new sewing skills: cross stitch and appliqué and then apply these to the design, decoration and assembly of their own cushions or Egyptian collars.</p>		<p>Electric poster An introduction to information design and electrical systems, pupils create an electronic poster using a basic circuit to develop a museum display.</p>
Spring 1	Mechanical systems	Spring 2	Digital world
	<p>Pneumatic toys Designing and creating a toy with a pneumatic system, learning how trapped air can be used to create a product with moving parts. Pupils are introduced to thumbnail sketches and exploded diagrams.</p>		<p>Wearable technology Designing, coding and promoting a piece of wearable technology to use in low light conditions, developing their understanding of programming to monitor and control products to solve a design scenario.</p>
Summer 1	Cooking and nutrition	Summer 2	Structure
	<p>Eating seasonally Discovering when and where fruits and vegetables are grown and learning about seasonality in the UK. Pupils respond to a brief to design a seasonal food tart using ingredients harvested in the UK in May and June.</p>		<p>Constructing a castle Learning about the features of a castle, pupils design and make one of their own. Using configurations of handmade nets and recycled materials to make towers and turrets and constructing a stable base.</p>

Year 4			
Autumn 1	Electrical systems	Autumn 2	Mechanical systems
	<p>Torches Applying their scientific understanding of electrical circuits, pupils design and create a torch made from recycled and reclaimed materials and objects. They then evaluate their products against a set design criteria.</p>		<p>Mechanical cars Using lollipop sticks, wheels, dowels and straws to create three prototype cars with different mechanisms. Pupils then apply their understanding of mechanisms to design a mechanical car kit, giving consideration to cost, durability and sustainability of the materials. They conduct market research of competitor car kits, create design criteria and provide customer feedback to other groups after testing, compare and evaluating their cars.</p> <p>Making a slingshot car Using lollipop sticks, wheels, dowels and straws to create a moving car. Pupils build a car chassis and design the body of the car, giving consideration to how the shape will affect the car's air resistance. They then construct and test their cars.</p>
Spring 1	Digital world	Spring 2	Cooking and nutrition
	<p>Mindful moments timer Evaluating existing timer products, pupils then develop a design criteria for a mindfulness timer. They learn how to use coding to program and control a product before then designing and making their own timer.</p>		<p>Adapting a recipe Evaluating existing biscuits recipes, children then work in groups to adapt a simple biscuit recipe to create a biscuit suited to a chosen target audience. They ensure that their creation comes within a given budget of overheads and ingredients.</p>
Summer 1	Structure	Summer 2	Textiles
	<p>Pavilions Exploring pavilion structures, learning what they are used for and investigating how to create strong and stable structures before designing and creating their own pavilions, complete with cladding.</p>		<p>Fastenings Building upon their sewing skills from previous years, pupils design and create a book sleeve; exploring a variety of fastenings and selecting the most appropriate for their design based on strength and appropriate-use.</p>

Year 5			
Autumn 1	Mechanical systems	Autumn 2	Digital world
	<p>Making a pop-up book Creating a four-page pop-up story book design, incorporating a range of functional mechanisms that use levers, sliders, layers and spacers to give the illusion of movement through interaction.</p> <p>Gears and pulleys Exploring the history, mechanics and uses of gears and pulleys, children apply their understanding to make a gear and a pulley system and design an eco-bike that harnesses the energy from an exercise bike to do work.</p>		<p>Monitoring devices Applying computing skills to program a Micro: bit to monitor optimal temperatures; designing and creating a case or stand for the Micro:bit and developing 3D CAD skills.</p>
Spring 1	Cooking and nutrition	Spring 2	Structures
	<p>Developing a recipe Researching and modifying a traditional bolognese sauce recipe to improve the nutritional value before then cooking an adapted version and creating packaging that fits a given design criteria. Learning where beef comes from.</p>		<p>Bridges Learning about different types of bridges and exploring how the strength of structures can be affected by the shapes used within them. Pupils then create their own bridge and test its durability - using woodworking tools and techniques.</p>
Summer 1	Textiles	Summer 2	Electrical systems
	<p>Stuffed toys Designing and making a stuffed toy. Pupils learn a new stitch - blanket stitch - which they use to join the fabric together for their toys, before creating and adding decoration.</p>		<p>Doodlers Further exploring series circuits and introducing motors. Pupils investigate existing products and use their problem-solving skills to establish how they think the products have been constructed, before then creating their own doodler.</p>

Year 6			
Autumn 1	Digital world	Autumn 2	Cooking and nutrition
	<p>Navigating the world Programming a navigation tool to produce a multifunctional device for trekkers. Combining 3D virtual objects to form a complete product concept in 3D computer-aided design modelling software.</p>		<p>Come dine with me Researching and preparing a three-course meal and taste-testing and scoring their outcomes. Researching the journey of their main ingredient from 'farm to fork' and writing a favourite recipe.</p>
Spring 1	Structures	Spring 2	Textiles
	<p>Playgrounds Designing and creating a model for a new playground featuring five apparatus, made from three different structures. Using a footprint as the base, practising visualising objects in plan view and including natural features within their designs.</p>		<p>Waistcoats Selecting fabrics, using templates, pinning, decorating and stitching materials together to create a waistcoat.</p>
Summer 1	Electrical systems	Summer 2	Mechanical systems
	<p>Steady hand game Designing and creating a steady hand game, using nets to make the bases and applying knowledge of electrical circuits to build an operational circuit with a buzzer.</p>		<p>Automata toys Using woodworking skills, pupils construct an automata; measuring and cutting their materials, assembling the frame, choosing cams and designing the characters that sit on the followers to form an interactive shop display.</p>