

	Autumn term		Spring term	Summer term	
EYFS	Cooking and nutrition Healthy Choices		Structures & Mechanisms Construction	Textiles Minibeast Cushions	
	Learn how to manage their own basic hygiene and personal needs including oral health and healthy food choices.		Create collaboratively, sharing ideas, resources and skills. Return and build on their previous learning, refining ideas and developing their ability to represent them.	Safely use and explore a variety of materials, tools and techniques experimenting with design, texture and function. Share their creations, explaining the process they have used.	
Year 1	Structures Constructing windmills		Mechanisms Wheels and axles	Cooking and nutrition Fruit and vegetables	Textiles Puppets
	Design, decorate and build a windmill for a mouse developing an understanding of different types of windmills, how they work and their key features. To know – <ul style="list-style-type: none"> A freestanding structure is a structure that stands on its own foundation or base without attachment to anything else. To be able to – <ul style="list-style-type: none"> Build structures that are freestanding using a range of different materials 		Learn about the key components of a wheeled vehicle and how wheels, axels, and axel holder’s work. Demonstrate their learning by designing and building their own wheeled vehicles. To know – <ul style="list-style-type: none"> Common uses of sliders. Different methods to create card sliders. How sliders can create simple mechanisms. To be able to – <ul style="list-style-type: none"> Design and make a slider product. Evaluate the success of their outcomes and recommend improvements 	Explore fruits and vegetables and learn which food category they fall into. Taste and choose ingredients to make a smoothie. To know – <ul style="list-style-type: none"> Why colourful food can be healthier. How different foods can affect their senses. To be able to – <ul style="list-style-type: none"> Peel, chop and grate a selection of vegetables. Modify food to suit their food senses 	Explore different ways of joining fabrics before creating their own hand-puppets based upon characters from a well-known fairy-tale. To know – <ul style="list-style-type: none"> Fabric can be joined together using a running stitch. The types and names of tools needed for sewing. To be able to – <ul style="list-style-type: none"> Create a running stitch, select tools for sewing, thread a needle
Year 2	Cooking and Nutrition A balanced diet	Structures Baby bear’s chair	Mechanisms Moving monster	Textiles Pouches	
	Taste food combinations of different food groups. Make a wrap that includes a healthy mix of protein, vegetables and dairy, and learn about ‘hidden sugars’. To know – <ul style="list-style-type: none"> Why vegetables are so important to our health. What processed foods are. To be able to – <ul style="list-style-type: none"> Prepare a range of salad vegetables. 	Using the tale of Goldilocks and the Three Bears, make Baby Bear a brand new chair. The design will consider his needs and what he likes and explore ways of building it so that it is a strong and stable structure and doesn’t break again. To know – <ul style="list-style-type: none"> Paper becomes stronger when it is folded. A load is the amount of weight a structure must carry. 	After learning the terms; pivot, lever and linkage, children will design a monster that will move using a linkage mechanism. After practising making linkages of different types and varying the materials they use, children will bring their monsters to life with the gift of movement. To know – <ul style="list-style-type: none"> How wheels and axles work together. The size and position of wheels affects how they move. To be able to – <ul style="list-style-type: none"> Create a simple wheel mechanism. Use wheel mechanisms to propel a simple vehicle 	Make their own template and cut it out using fabric. Use a simple running stitch to join two pieces together before decorating the front. To know – <ul style="list-style-type: none"> How to cut out shapes which have been created by using a template. How to use a range of basic sewing skills. To be able to – <ul style="list-style-type: none"> Use a template to transfer a pattern. Cut out and join fabric shapes using a template 	

	<ul style="list-style-type: none"> Shape and season a bread snack 	<p>To be able to –</p> <ul style="list-style-type: none"> Fold paper to increase strength and stability. Test and record how much weight paper can hold. 			
Year 3	<p>Mechanical system Pneumatic toys</p> <p>Design and create a toy with a pneumatic system, learning how trapped air can be used to create a product with moving parts while also building on their design knowledge. They will then be introduced to thumbnail sketches and exploded diagrams.</p> <p>To know –</p> <ul style="list-style-type: none"> How pneumatic systems work. How to test and finalise ideas against design criteria. <p>To be able to –</p> <ul style="list-style-type: none"> Design a toy that uses a pneumatic system. Create a pneumatic system. 	<p>Structures Construction a castle</p> <p>Learn the features of a castle before designing and making their own using configurations of handmade nets and recycled materials to make towers and turrets.</p> <p>To know –</p> <ul style="list-style-type: none"> How multiple shapes (2D and 3D) are combined to form a strong and stable structure. <p>To be able to –</p> <ul style="list-style-type: none"> Design a castle. Construct 3D nets. Construct and evaluate my final product 	<p>Cooking and Nutrition Eating seasonally</p> <p>Discover when and where fruits and vegetables are grown. Learn about the colour of fruits and vegetables and their health benefits.</p> <p>To know –</p> <ul style="list-style-type: none"> Climate affects food growth. The advantages of eating seasonal foods grown in the UK. <p>To be able to –</p> <ul style="list-style-type: none"> Create a recipe that is healthy and nutritious using seasonal vegetables. Safely follow a recipe when cooking. 	<p>Electrical Systems Electric poster</p> <p>Pupils understand various forms of information design. Children to use their knowledge to create an information poster.</p> <p>To know –</p> <ul style="list-style-type: none"> The purpose of information design. <p>To be able to –</p> <ul style="list-style-type: none"> Research a set topic to develop a range of initial ideas. Develop an initial idea into a final design. Assemble my final product and incorporate a simple circuit. 	
	<p>Structures Pavilions</p> <p>Explore pavilion structures, learning about 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>To know –</p> <ul style="list-style-type: none"> How to create a range of different shaped frame structures. To add cladding to a frame structure <p>To be able to –</p> <ul style="list-style-type: none"> Design a structure. Build a frame structure. 	<p>Cooking and Nutrition Adapting a recipe</p> <p>Adapt a simple biscuit recipe, to create the tastiest biscuit. Ensure that their creation comes within the given budget of overheads and costs of ingredients.</p> <p>To know –</p> <ul style="list-style-type: none"> How to follow a baking recipe. How to make a biscuit that meets a given design brief. <p>To be able to –</p> <ul style="list-style-type: none"> Make and test a prototype. 	<p>Digital World Monitoring devices</p> <p>Design, program, prototype and brand a Micro bit mindful moments timer, to a specified amount of minutes.</p> <p>To know –</p> <ul style="list-style-type: none"> How to create a design criteria for an electronic timer based on analysis of existing products. How to apply understanding of computer programming to instruct and control a Micro: bit to function as a timer. 	<p>Mechanical systems Making a slingshot car</p> <p>Transform lollipop sticks, wheels, dowels, and straws into a moving car. Use a glue gun to construct the materials, making the launch mechanism, designing, and also making the body of the vehicle using nets and assembling these to the chassis.</p> <p>To know –</p> <ul style="list-style-type: none"> How to build a car chassis. How to design a shape that reduces air resistance. <p>To be able to –</p> <ul style="list-style-type: none"> Make a model based on a chosen design. Assemble and test my completed product 	
Year 4					

		<ul style="list-style-type: none"> Design a biscuit to a given budget. 	To be able to – <ul style="list-style-type: none"> Design, make and develop a prototype case for my mindful moment timer. Design a logo for a mindfulness company using computer-aided design. 	
Year 5	Electrical Systems Doodlers	Cooking and Nutrition What could be healthier?	Mechanical systems Making a pop-up book	Structures Bridges
	<p>Pupils analyse an existing product that uses a motor - the Doodler (a scribble bot), then redesign it with their own preferred configuration and finally teach others how to make one by writing instructions as part of a DIY kit.</p> <p>To know –</p> <ul style="list-style-type: none"> How motors are used in electrical products. How to investigate an existing product to determine the factors that affect the product's form and function. <p>To be able to –</p> <ul style="list-style-type: none"> Put findings from research into practice to develop an improved product. Develop a DIY kit for another individual to assemble their product. 	<p>Focussing on nutrition, children research and modify a traditional beef bolognese recipe to make it healthier and cook their new improved version.</p> <p>To know –</p> <ul style="list-style-type: none"> Where food comes from. The term 'healthy' <p>To be able to –</p> <ul style="list-style-type: none"> Adapt a traditional recipe. Complete a food product. 	<p>Choose a simple story or nursery rhyme, then create a four-page pop-up storybook design. Add accompanying captions, incorporating a range of mechanisms and decorative features, including structures, levers, sliders, layers, and spacers.</p> <p>To know –</p> <ul style="list-style-type: none"> How to design a pop-up book. How to use layers and spacers to cover the working of mechanisms. <p>To be able to –</p> <ul style="list-style-type: none"> Follow my design brief to make my pop-up book. Create a high-quality product suitable for a target user. 	<p>Introduction to measuring, sawing, and joining wood accurately. Learn about different types of bridges and also exploring how the strength of structures can be affected by the shapes used. Children create their own wooden bridge and test its durability.</p> <p>To know –</p> <ul style="list-style-type: none"> How to reinforce a beam (structure) to improve its strength. How to complete, reinforce and evaluate my truss bridge <p>To be able to –</p> <ul style="list-style-type: none"> Build a spaghetti truss bridge. Build a wooden truss bridge.
Year 6	Cooking and Nutrition Come dine with me	Digital world Navigating the world	Structure Playgrounds	Mechanical systems Automata toys
	<p>Research and prepare a three-course meal. Taste-test and score the food. Research the journey of their main ingredient from 'farm to fork'.</p>	<p>Program a navigation tool to produce a multifunctional device for trekkers. Combine 3D objects to form a complete</p>	<p>Design and create a model of a new playground featuring five apparatus, made from three different structures. Creating a footprint as the base, pupils can practise visualising objects in plan view and also get creative with their use of natural features and cladding for their structures.</p>	<p>Construct a window display using an automata mechanism; measuring and cutting their materials, assembling the frame, choosing cams, designing the characters that sit on the followers and also finishing with a foreground and background.</p> <p>To know –</p>

	<p>To know –</p> <ul style="list-style-type: none"> Where their food comes from. How to research and design a three-course meal. <p>To be able to –</p> <ul style="list-style-type: none"> Write up a recipe. Prepare a meal using a recipe. 	<p>product in CAD 3D modelling software.</p> <p>To know –</p> <ul style="list-style-type: none"> How to write a design brief and criteria based on a client request. How to write a program to include multiple functions as part of a navigation device. <p>To be able to –</p> <ul style="list-style-type: none"> Develop a sustainable product concept. Develop 3D CAD skills to produce a virtual model. Present a pitch to 'sell' the product to a specified client 	<p>To know –</p> <ul style="list-style-type: none"> How to design a playground with a variety of structures. How to improve and add detail to structures. <p>To be able to –</p> <ul style="list-style-type: none"> Build a range of structures. Create the surrounding landscape. 	<ul style="list-style-type: none"> How to prepare wood for assembly by measuring, marking and cutting each piece. The relationship between cam profiles and follower movement, to inform a design decision. <p>To be able to –</p> <ul style="list-style-type: none"> Assemble the automata frame components and supports with the help of an exploded diagram. Apply the housing and finishing touches to the automata frame.
--	---	--	---	--

Mechanisms

(KS1) Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs. Recognise where mechanisms such as these exist in toys and other familiar products.

(KS2) Extend pupils understanding of individual mechanisms, to form part of a functional system, for example: Automatas, that use a combination of cams, followers, axles/shaft, cranks and toppers.

Structures

(KS1) Build structures such as windmills and chairs, exploring how they can be made stronger, stiffer and more stable. Recognise areas of weakness through trial and error.

(KS2) Continue to develop KS1 exploration skills, through more complex builds such as pavilion and bridge designs. Understand material selection and learn methods to reinforce structures.

Textiles

(KS1) Explore different methods of joining fabrics and experiment to determine the pros and cons of each technique.

Cooking & Nutrition

(KS1) Learn about the basic rules of a healthy and varied diet to create dishes. Understand where food comes from, for example plants and animals.

(KS2) Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods. Understand what is meant by seasonal foods. Know where and how ingredients are sourced.

Electrical Systems (KS2)

Create functional electrical products that use series circuits, incorporating different components such as bulbs, LEDs, switches, buzzers and motors. Consider how the materials used in these products can: • Protect the circuitry. • Reflect light. • Conduct electricity. • Insulate.

Digital World (KS2)

Learn how to develop an electronic product with processing capabilities. Apply Computing principles to program functions within a product including to control and monitor it. Understand how the history and evolution of product design lead to the on-going Digital revolution and the impact it is having in the world today.