

### Design and Technology Long Term Plan 2021-2022

	Autumn Term	Spring Term	Summer Term
<b>EYFS Nur.</b>	Children in Nursery will draw with increasing complexity and detail, such as representing a face with a circle and including details. They will show different emotions in their drawings and paintings, like happiness, sadness, fear etc. They will create closed shapes with continuous lines, and begin to use these shapes to represent objects. Children will capture experiences and responses through drawing to represent ideas like movement or loud noises. (EAD) When drawing or painting, children will begin to use a comfortable grip and start to show control when holding equipment. (PD)	Children will explore colours and colour mixing, noticing features of artists work overlapping with their own, through colour, movement and details. They will continue to increase complexity with detail, using simple shapes and lines to represent objects and people. Children will show different emotions in their paintings, such as happiness, sadness, fear, etc. (EAD) They will build independence and ownership over their work by selecting appropriate tools and resources to use to create their pictures. (PSED) Children will continue to develop their ability to control equipment such as pencils, pens and paintbrushes. (PD)	Children will continue to build on the skills they have learnt over the year. They will select appropriate tools and resources to use in order to create collages, such as materials, glue and scissors. Children will show a preference for a dominant hand, whilst using one handed tools and equipment independently. Children will continue to look at work of different artists, noticing the overlap with their own work through colour, movement and details. They will continue to increase complexity with detail, using simple shapes and continuous lines to represent objects and people.
<b>EYFS Rec.</b>	<b>Portraits / families</b> Capture experiences and responses with a range of media, such as pencils, paint, chalk, pen. They will begin to explore, use and refine a variety of artistic effects to express their ideas and feelings, (EAD). Children will use these effects to create simple representations of events, people and objects through drawing and painting. They will begin to learn to create collaboratively, sharing ideas, resources and skills. (EAD) Children will start to develop their small motor skills so that they can use a range of tools competently, safely and confidently (PD). Children will begin to articulate their ideas and thoughts in well-formed sentences in order to talk about their creations with others. (C&L)	<b>Painting and Colour Mixing</b> Explore what happens when they mix colours. Children will continue to explore, use and refine a variety of artistic effects to express their ideas and feelings. (EAD) They will return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD) Children will explore this skill during continuous provision and adult led activities, creating collaboratively, sharing ideas, resources and skills. (EAD) They will develop their small motor skills so that they can use a range of tools competently, safely and confidently, (PD) such as small and large paintbrushes, and sponges. Children will articulate their ideas and thoughts in well-formed sentences in order to talk about their creations with others. (C&L)	<b>Collage</b> This term, children will begin to work towards the Early Learning Goals. They will use the tools and techniques they have learned, experimenting with colour, design, texture, form and function. (EAD). Children will begin to develop confidence to share their creations, talking about the features of their work and explain the process they have used. Use a range of small tools, including scissors, paint brushes and cutlery (PD)
<b>Year 1</b>	<b>Mechanisms</b> In this unit, children will focus on sliders and levers. Children will explore and evaluate a collection of books and everyday products that have moving parts including those with levers and sliders. Following this, they will work towards designing and making their own moving picture book. <b>Plan B – Moving Pictures</b>	<b>Structures</b> This unit will teach children how to design and build a home/house. Children will learn about the style of different homes/houses, considering different materials and make their own models according to their design. To evaluate their work, they will test whether the home/house will stand alone. <b>Plan B - Homes</b>	<b>Preparing fruit and vegetables</b> In this unit, children will examine a range of fruit and vegetables. The children will be provided with opportunities to handle, smell and taste fruit and vegetables before deciding which would be suitable for a fruit kebab and dip. <b>Plan B: Teddy Bear's Picnic</b>
<b>Year 2</b>		<b>Preparing fruit and vegetables</b> In this unit, children will develop on skills taught in Year 1 in order to create a pizza. The children will be able to consolidate their prior knowledge of fruit and vegetables by having further opportunities to handle, smell and taste fruit and vegetables before deciding which would be suitable for a pizza. The children will have the opportunity to use a variety of tools to practise a range of food-processing skills such as cutting and grating. <b>Plan B: Pizzas</b>	<b>Textiles</b> In this unit, the children will focus on templates and joining techniques. Children will investigate and evaluate puppets. They will make drawings of existing products, stating the user and purpose. The children will have the opportunity to investigate fabrics to determine which is best for the purpose of the product that they are creating. They will demonstrate the correct use of appropriate tools to mark out, tape or pin the fabric to the templates and cut out the relevant fabric pieces. They will have the opportunity to discuss the advantages and disadvantages of a variety of sewing techniques such as running stitch. After making their product, they will evaluate their work against the intended purpose and the intended user. <b>Plan B: Puppets</b>  <b>Mechanisms</b> In this unit, children will focus on wheels and axles. The children will have the opportunity to explore and evaluate a range of wheeled products such as toy vehicles and everyday objects. Children will be taught how to mark out, hold, cut and join materials and components correctly. Using a sample of materials and components, children will assemble some examples of wheel, axle and axle holder combinations. After distinguishing between fixed and freely moving axles, children will generate initial ideas and simple design criteria before making their own moving vehicle. They will evaluate their ideas and product against their design criteria. <b>Plan B: Vehicles</b>

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<b>Year 3</b>	<p><b>Mechanical systems</b></p> <p>In this unit, the children will develop on prior mechanical units by focusing on levers and linkages. The children will investigate, analyse and evaluate books and cards that have a range of lever and linkage mechanisms. Children will generate a range of ideas and design criteria that will be used to guide the development and evaluation of their products. Using annotated sketches and prototypes, children will develop their design ideas. After considering the main stages, they will assemble high-quality products, drawing on their knowledge and skills. The children will evaluate their final product against the intended purpose and with the intended user, drawing on the design criteria previously agreed.</p> <p><b>Plan B: Story Books</b></p>	<p><b>Cooking and Nutrition – Healthy and Varied Diet</b></p> <p>Children will build on knowledge learned in KS1 including preparing ingredients safely and hygienically and using equipment and utensils to prepare and combine ingredients. They will plan the main stages of their recipe, listing ingredients, utensils and equipment. Children will select from a range of ingredients and utensils to make their sandwiches before evaluating their finished product.</p> <p><b>Plan B: Sandwich Snacks</b></p>	<p><b>Structures</b></p> <p>In this unit, the children will build on their previous unit of free standing structures by focusing on shell structures. Children will research different features of packaging including protection, presentation, preservation and contents. Children will take a small package apart identifying and discussing parts of a net including tabs and faces. They will determine which designs are the most effective through discussing graphics including colours, style, logo and font. The children will develop their understanding of stiffening and strengthening their shell structures by folding and shaping, corrugating, ribbing and laminating. They will design and make their packaging thinking about the strengths and weakness of existing packaging and evaluate their final product.</p> <p><b>Plan B: Packaging</b></p>
<b>Year 4</b>	<p><b>Electrical systems</b></p> <p>In this unit, children will develop on their prior learning by creating a nightlight/torch through using simple programming and control. The children will discuss, investigate and disassemble relevant battery-powered products. Children will agree on a design criterion that can be used to guide the development and evaluation of the children's products, including safety features. Using annotated sketches, cross-sectional and exploded diagrams, children will design their nightlights/torch. Children will write, test and debug programs that will control the electrical products they have made for a clearly defined purpose such as the bulb on the nightlight switching off after a period of time when the user has gone to sleep. The children will evaluate their ideas and products against their own design criteria and will identify the strengths and areas for improvement in their work.</p> <p><b>Plan B: Lighting It Up</b></p>	<p><b>Textiles</b></p> <p>In this unit, children will have the opportunity to create a 3D product from a 2D shape. Children will investigate a range of textile products that a selection of stitches, joins, fabrics, finishing techniques, fastenings and purposes. Children will build on their prior knowledge of joining fabrics in simple ways, using simple patterns and templates for marking out, and evaluating a range of textile products. They will be given the opportunity to disassemble products to gain an understanding of 3D shape, patterns and seam allowances. They will design and <b>make a money container</b> whilst developing an understanding of back stitch, backward running stitch, over sew stitch, blanket stitch and running stitch. They will complete their products with possible fastenings such as buttons and Velcro. The children will evaluate their final product in relation to their design brief and criteria. The product should be tested by the intended user and for its purpose and others' views sought to help with identifying possible improvements.</p> <p><b>Plan B: Money Containers</b></p>	<p><b>Cooking and Nutrition – Celebrating Culture and Seasonality</b></p> <p>In this unit, the children will generate ideas through discussion to develop a design criteria including appearance, taste, texture and aroma or an appealing product. They will plan the main stages of their recipe, listing ingredients, utensils and equipment. Using annotated sketches children will develop and communicate their ideas. Children will select from a range of utensils and ingredients, thinking about sensory characteristics, to make their seasonal dish before evaluating their finished product.</p> <p><b>Plan B: Seasonal Food</b></p>
<b>Year 5</b>	<p><b>Cooking and Nutrition – Health and Varied Diet</b></p> <p>Ideas will be communicated using words and annotated sketches. Children will: 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 and evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p> <p><b>Plan B: Bread</b></p>	<p><b>Structures</b></p> <p>In this unit, the children will develop on prior structure units by focusing on frame structures to <b>create a bridge</b>. They will consolidate their experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials as well as their basic understanding of what structures are and how they can be made stringer, stiffer and more stable. Children will formulate a clear plan, including step-by-step list of what needs to be done and lists of resources to be used before making their product by competently selecting and using appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make a framework. Children will critically evaluate their product against their design specification, intended use and purpose, identifying strengths and areas for development.</p> <p><b>Plan B: Building Bridges</b></p> <p><b>Electrical systems</b></p> <p>Identify CPD for staff regarding programming unit</p> <p><b>Plan B: Programming Pioneers (Y5/Y6 Unit)</b></p>	
<b>Year 6</b>	<p><b>Cooking and Nutrition – Health and Varied Diet</b></p> <p>Ideas will be communicated using words and annotated sketches. Children will: 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 and evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p> <p><b>Plan B: Burgers</b></p>	<p><b>Textiles</b></p> <p>In this unit, the children will develop on previous textile units by combining different fabric shapes to create a <b>felt slipper</b>. Children will generate innovative ideas through research and develop a design brief and criteria for a design specification. They will explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. Ideas will be communicated through talking, drawing, templates, mock-ups and prototypes. Designs will be developed to become purposeful, functional and appealing products that are fit for purpose for the intended user. Children will produce detailed lists of equipment and fabrics relevant to their tasks before formulating step-by-step plans. They will select from and use a range of tools and equipment to make products that are accurately assembled and well finished, working within the constraints of time, resources and cost. Final products will be evaluated referring back to the design brief and design specification and taking into account the views of others when identifying improvements.</p> <p><b>Plan B: Slippers</b></p>	<p><b>Mechanical/Electrical systems</b></p> <p>In this unit, the children will develop on previous mechanical units building on their knowledge of axles, axle holders and wheels that are fixed or free moving; their basic understanding of electrical circuits, simple switches and components and their experience of cutting and joining techniques with a range of materials including card, plastic and wood. They will generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources before developing a simple design specification to guide their thinking. Ideas will be communicated through discussion, annotated drawings, exploded drawings and drawings from different views. Children will produce detailed lists of tools, equipment and materials, formulate step-by-step plans and select from and use a range of tools and equipment to make a product that is accurately assembled and well finished. Final products will be evaluated referring back to the design brief and design specification and taking into account the views of others when identifying improvements.</p> <p><b>Plan B: Fairground (Y6 Unit)</b></p>

Nurture the Potential to Succeed

Self-motivation Teamwork Resilience Independence Vision Emotional Intelligence