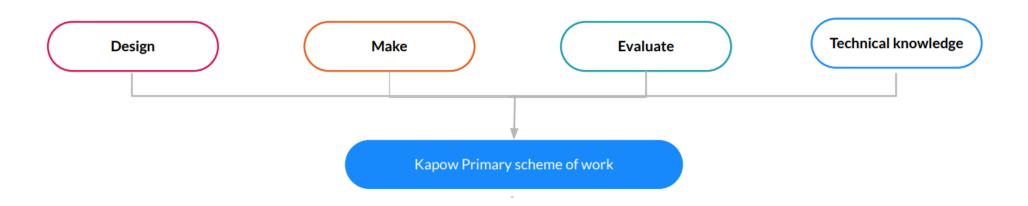
## How is the Design and technology scheme of work organised?



## **EYFS**

Autumn Term – Masks	Skills	Design – Children use their imagination to design their own mask Make – Using different colours, fabric, textures each mask is unique and different. Children will have the opportunity to practise their cutting skills. Evaluate – Children can verbally say what they like and dislike about their design. Children can verbally explain what they have made.
	Knowledge	<b>Technical</b> - To know how to use select materials to make a face. To know the facial features (face, eyes, nose, mouth, ears)  To know how to use glue and tape to join materials when making a mask.
Spring Term – Easter cakes	Skills	Design – Children to look at different Easter designs for their cake.  Make – Children will have chance to decorate their cakes.  Evaluate- Children can verbally say whether they liked their design. Children to describe what colours they have used.
	Knowledge	Technical - Explore different materials freely, in order to develop their ideas about how to use them and what to make Develop their own ideas and then decide which materials to use to express them.  Learn about hygiene safety and washing our hands when making food etc.
Summer Term – Design and make a bug hotel	Skills	Design – Children to design their own bug hotel suitable for the minibeasts/bugs in their outside outside environment. Children will learn about the purpose of a hotel and how it keeps the bugs safe and warm.  Make – Children will be able to experiment with different equipment like leaves and wood to create and make their bug hotel. Children will get the chance to experiment joining equipment together.

	<b>Evaluate</b> – Children can verbally discuss whether their bug hotel to suitable for the bugs and whether the bugs would like to live there.
Knowledge	Technical - Use one handed tools and equipment Explore how things work Explore different materials freely, in order to develop their ideas about how to use them and what to make Develop their own ideas and then decide which materials to use to express them.

Autumn 2 Constructing a Windmill	Skills	Design – Learning the importance of a clear design criteria - Including individual preferences and requirements in a design.			
		<ul> <li>Make - Making stable structures from card.</li> <li>Following instructions to cut and assemble the supporting structure of a windmill.</li> <li>Making functioning turbines and axles which are assembled into a main supporting structure.</li> <li>Finding the middle of an object.</li> <li>Puncturing holes.</li> <li>Adding weight to structures.</li> <li>Creating supporting structures.</li> <li>Evaluate – Evaluating a windmill according to design criteria, testing whether the structure is strong and stable and altering it if isn't.</li> </ul>			
	Knowledge	Technical - To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).  To understand that axles are used in structures and mechanisms to make parts turn in a circle.  To begin to understand that different structures are used for different purposes.  To know that a structure is something that has been made and put together.  To know that the sails or blades of a windmill are moved by the wind.  To know that a structure is something built for a reason.  To know that stable structures do not topple.  To know that adding weight to the base of a structure can make it more stable			
Spring 2 – Puppets	Skills	Design - Using a template to create a design for a puppet  Make - Cutting fabric neatly with scissors.  - Using joining methods to decorate a puppet.  - Sequencing steps for construction.  Evaluate – Reflecting on a finished product, explaining likes and dislikes.			

	Knowledge   Technical – To know that 'joining technique' means connecting two pieces of material together.	
		<ul> <li>To know that there are various temporary methods of joining fabric by using staples. glue or pins.</li> </ul>
		<ul> <li>To understand that different techniques for joining materials can be used for different purposes.</li> </ul>
		- To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.
		- To know that drawing a design idea is useful to see how an idea will look.
Summer 2	Skills	<b>Design</b> - Explaining how to adapt mechanisms, using bridges or guides to control the movement.
Making a		- Designing a moving story book for a given audience.
pop-up story		Make - Following a design to create moving models that use levers and sliders.
books		<b>Evaluate</b> - Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.
		- Reviewing the success of a product by testing it with its intended audience.
	Knowledge	<b>Technical</b> - To know that a mechanism is the parts of an object that move together.
		To know that a slider mechanism moves an object from side to side.
		To know that a slider mechanism has a slider, slots, guides and an object.
I		To know that bridges and guides are bits of card that purposefully restrict the movement of the slider.

## Lower KS2

Autumn 2 – Constructing a castle	Skills	Design- Designing a castle with key features to appeal to a specific person/purpose.  - Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours.  - Designing and/or decorating a castle tower on CAD software.  Make - Constructing a range of 3D geometric shapes using nets.  - Creating special features for individual designs.  - Making facades from a range of recycled materials.  Evaluate - Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design.  - Suggesting points for modification of the individual designs.
	Knowledge	Technical - To understand that wide and flat based objects are more stable.  - To understand the importance of strength and stiffness in structures
Spring 2 – Pneumatic Toys	Skills	Design - • Designing a toy which uses a pneumatic system. • Developing design criteria from a design brief. • Generating ideas using thumbnail sketches and exploded diagrams. • Learning that different types of drawings are used in design to explain ideas clearly.

		<ul> <li>Make - Creating a pneumatic system to create a desired motion.</li> <li>Building secure housing for a pneumatic system.</li> <li>Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy Selecting materials due to their functional and aesthetic characteristics.</li> <li>Manipulating materials to create different effects by cutting, creasing, folding and weaving.</li> <li>Evaluate - Using the views of others to improve designs.</li> <li>Testing and modifying the outcome, suggesting improvements.</li> <li>Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.</li> </ul>
	Knowledge	Technical - To understand how pneumatic systems work.  - To understand that pneumatic systems can be used as part of a mechanism.  - To know that pneumatic systems operate by drawing in, releasing and compressing air.
Summer 2 – Cross Stitch and Textiles	Skills	Design - Designing and making a template from an existing cushion and applying individual design criteria.  Make - Following design criteria to create a cushion or Egyptian collar.

	Selecting and cutting fabrics with ease using fabric scissors.  Threading needles with greater independence.  Tying knots with greater independence.  Sewing cross stitch to join fabric.  Decorating fabric using appliqué.  Completing design ideas with stuffing and sewing the edges (Cushions)  Evaluate - Evaluating an end product and thinking of other ways in which to create similar items.
Knowledge	<ul> <li>Technical - To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.</li> <li>To know that when two edges of fabric have been joined together it is called a seam.</li> <li>To know that it is important to leave space on the fabric for the seam.</li> <li>To understand that some products are turned inside out after sewing so the stitching is hidden.</li> </ul>

## Upper KS2

Autumn 2 – Stuffed Toys	Skills	<ul> <li>Design - Designing a stuffed toy, considering the main component shapes required and creating an appropriate template.         <ul> <li>Considering the proportions of individual components</li> </ul> </li> <li>Make - Creating a 3D stuffed toy from a 2D design.         <ul> <li>Measuring, marking and cutting fabric accurately and independently.</li> <li>Creating strong and secure blanket stitches when joining fabric.</li> <li>Threading needles independently.</li> <li>Using appliqué to attach pieces of fabric decoration.</li> <li>Sewing blanket stitch to join fabric.</li> <li>Applying blanket stitch so the spaces between the stitches are even and regular.</li> </ul> </li> <li>Evaluate - Testing and evaluating an end product and giving point for further improvements.</li> </ul>
	Knowledge	<ul> <li>Technical - To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric.</li> <li>To understand that it is easier to finish simpler designs to a high standard.</li> <li>To know that soft toys are often made by creating appendages separately and then attaching them to the main body.</li> </ul>

		- To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.
Spring 2 – Making a pop-up book	Skills	Design - Designing a pop-up book which uses a mixture of structures and mechanisms.  - Naming each mechanism, input and output accurately.  - Storyboarding ideas for a book.  Make - Following a design brief to make a pop up book, neatly and with focus on accuracy.  Making mechanisms and/or structures using sliders, pivots and folds to produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.  Evaluate — Evaluating the work of others and receiving feedback on own work.  - Suggesting points for improvement.
	Knowledge	<ul> <li>Technical - To know that mechanisms control movement.</li> <li>To understand that mechanisms can be used to change one kind of motion into another.</li> <li>To understand how to use sliders, pivots and folds to create paper-based mechanisms.</li> </ul>
Summer 2 – Constructing Bridges	Skills	Design - Designing a stable structure that is able to support weight.  Creating a frame structure with a focus on triangulation.

	<ul> <li>Make - Making a range of different shaped beam bridges.         <ul> <li>Using triangles to create truss bridges that span a given distance and support a load.</li> <li>Building a wooden bridge structure.</li> <li>Independently measuring and marking wood accurately.</li> <li>Selecting appropriate tools and equipment for particular tasks.</li> <li>Using the correct techniques to saws safely.</li> <li>Identifying where a structure needs reinforcement and using card corners for support.</li> <li>Explaining why selecting appropriating materials is an important part of the design process.</li> <li>Understanding basic wood functional properties</li> </ul> </li> <li>Evaluate - Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary.         <ul> <li>Suggest points for improvements for own bridges and those designed by others.</li> </ul> </li> </ul>
Knowledge	Technical - To understand some different ways to reinforce structures.  - To understand how triangles can be used to reinforce bridges.

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	<ul> <li>To know that properties are words that describe the form and function of materials.</li> <li>To understand why material selection is important based on properties.</li> <li>To understand the material (functional and aesthetic) properties of wood.</li> </ul>