Year 5: Autumn

Textiles: Stuffed Toys

Enquiry Question	**How can we design and make a stuffed toy using blanket stitch?**				
	Required Prior Knowledge			**Knowledge to be taught**	
Substantive Knowledge	• Applique is a way of mending or decorating a textile by applying smaller pieces of fabric. • A seam is where two edges of fabric have been joined together. • It is important to leave space on the fabric for the seam. • Some products are turned inside out after sewing so that the stitching is hidden.			• A blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. • It is easier to finish simpler designs to a high standard. • Soft toys are often made by creating appendages separately and then attaching them to the main body. • Know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	
Disciplinary Knowledge					
Design	• Design a stuffed toy considering the main component shapes required and creating an appropriate template. • Consider the proportions of individual components.				
Make	• Create a 3D stuffed toy from a 2D design. • Measure , mark and cut fabric accurately and independently. • Create strong and secure blanket stitches when joining fabric ensuring the spaces between stitches are even and regular. • Thread needles independently. • Use applique to attach pieces of fabric decoration.				
Evaluate	• Test and evaluate an end product and give points for further improvement.				
Vocabulary	**accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template**				
Teaching Sequence	• *Explore examples* • *Make connections to previous learning* • *Make closer observations through sketching*	• *Model key techniques for children to try* • *Practise techniques/make a prototype*	• *Design own project*	• *Apply skills and knowledge learned to own project*	***ASSESSMENT*** *Evaluate own work*

Learning Questions	What makes a successful stuffed toy?	How is blanket stitch sewn?	Can I design my own stuffed toy with decorations and appendages?	Can I use blanket stitch to assemble the components of a stuffed toy?	Can I evaluate the stuffed toy that I designed and made?
Mastery Keys	➢ Can design and make a stuffed toy with appendages and using evenly spaced blanket stitch.				

Year 5: Spring

Mechanisms: Pop-up Books

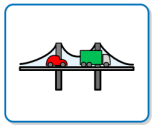
Enquiry Question	**How can we design and make a pop-up book using a variety of mechanisms?**	
	Required Prior Knowledge	**Knowledge to be taught**
Substantive Knowledge	• Mechanisms are a collection of moving parts that work together as a machine to produce movement. • There is always an input and an output in a mechanism. • An input is the energy that is used to start something working. • An output is the movement that happens as a result of the input. • A lever is something that turns on a pivot. • A linkage mechanism is made up of a series of levers. (Y2 Mechanisms)	• Mechanisms control movement. • Mechanisms can be used to change one kind of motion into another. • Understand how to use sliders, pivots and folds to create paper-based mechanisms. • A design brief is a description of what is to be designed and made. • Designers often want to hide mechanisms to make a product more aesthetically pleasing.
Disciplinary Knowledge		
Design	• Design a pop-up book which uses a mixture of structures and mechanisms. • Name each mechanism, input and output accurately. • Storyboard ideas for a book.	
Make	• Follow a design brief to make a pop-up book, neatly with a focus on accuracy. • Make mechanisms and/or structures using sliders, pivots and folds to produce movement. • Use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.	
Evaluate	• Evaluate the work of others and receive feedback on own work. • Suggest points for improvement.	
Vocabulary	**design, input, motion, mechanism, criteria, research, reinforce, model**	

Teaching Sequence	• *Explore examples* • *Make connections to previous learning* • *Make closer observations through sketching*	• *Model key techniques for children to try* • *Practise techniques/make a prototype*	• *Design own project*	• *Apply skills and knowledge learned to own project*	***ASSESSMENT*** *Evaluate own work*
Learning Questions	**What mechanisms can I use to make a**	**What are layers and spacers?**	**Can I design my own pop-up book with a**	**Can I construct my own pop-up book?**	**Can I evaluate the pop-up book that I**

	pop-up book?		**front cover, four pages and a mixture of structures and mechanisms within it?**		**designed and created acting on feedback to make improvements?**
Mastery Keys	➢ Can design and create a pop-up book with a different mechanism on each page using levers, sliders, pivots and spacers which would be appealing to young children.				

Year 5: Summer

Structures: Bridges



Enquiry Question	How can we design and build a truss bridge that is able to support weight?	
	Required Prior Knowledge	**Knowledge to be taught**
Substantive Knowledge	• Wide and flat based objects are more stable. • Strength and stiffness are important in structures. • Features of a castle include: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse. • The facade is the front of a structure. • A castle needs to be strong and stable to withstand enemy attack. • A paper net is a flat 2D shapes that can become a 3D shape once assembled. • A design specification is a list of success criteria for a product.	• A range of different ways to reinforce structures. • How to use triangles to reinforce bridges. • Properties are words that describe the form and function of materials. • Material selection is important based on their properties. • Different woods have different functional and aesthetic properties. • How to carry and use a saw safely. • The difference between arch, beam, truss and suspension bridges,
Disciplinary Knowledge		
Design	• Design a stable structure that is able to support weight. • Create a frame structure with focus on triangulation.	
Make	• Make a range of different shaped beam bridges. • Use triangles to create truss bridges that span a given distance and support a load. • Explain why selecting appropriate materials is an important part of the design process. • Build a wooden bridge structure. • Independently measure and mark wood accurately. • Select appropriate tools and equipment for particular tasks. • Use the correct techniques to saw safely. • Identify where a structure needs reinforcement and use card corners for support. • Understand basic wood functional properties.	
Evaluate	• Adapt and improve own bridge structure by identifying points of weakness and reinforcing them as necessary. • Suggest points for improvements for own bridges and those designed by others.	
Vocabulary	**beam bridge, arch bridge, truss bridge, strength, technique, corrugation, lamination, stiffness, rigid, factors, stability, visual, appeal, aesthetics, joints, mark out, hardwood, softwood, wood file/rasp, sandpaper/glass**	

	paper, bench hook/vice, tenon saw/coping saw, assemble, material properties, reinforce, wood sourcing, evaluate, quality of finish, accuracy				
Teaching Sequence	• *Explore examples* • *Make connections to previous learning* • *Make closer observations through sketching*	• *Model key techniques for children to try* • *Practise techniques/make a prototype*	• *Design own project*	• *Apply skills and knowledge learned to own project*	***ASSESSMENT*** *Evaluate own work*
Learning Questions	**How can a beam's strength be improved?**	**What is a truss bridge?**	**Can I design my own truss bridge?**	**Can I build my own truss bridge?**	**Can I evaluate the truss bridge that I designed and built?**
Mastery Keys	➢ Can design and make a truss bridge, using mitred corners that they have cut with a saw to create a stable, strong structure.				