Ospreys Design Technology Overview

	AUTUMN TERM	SPRING TERM	SUMMER TERM
Year A	**Electrical Systems: Electronic greetings card** • Name key circuit components and use them to make a functional graphite circuit. • Design an electronic greetings card with a working circuit built in. • Use their design to make the card, including all elements to ensure that the electronic part will work. • Add the circuit components (including copper tape) to form a complete circuit.	**Structures: Bridges** • Identify and create bam and arch bridges. Explore how to reinforce a beam (structure) to improve its strength • Build a spaghetti truss bridge and investigate how to use triangles to reinforce it. • Select and use appropriate tools and equipment to build a wooden bridge including measuring and marking out accurately before cutting. • Build a truss bridge. Identify points of weakness and reinforce as necessary. Evaluate the bridge against the design specification.	**Cooking and Nutrition: What could be healthier** • Identify the ingredients in Bolognese and how beef gets from the farm to the table. • Compare different Bolognese sauces and identify unique ingredients. Begin to plan adaptations to a basic recipe. • Compare nutritional values and modify a recipe to contain different ingredient choices based on the findings. • Understand how to work with food stuff safely: Safe and accurate cutting; dealing with hot food; avoiding cross-contamination. • Design a label for their product to fit specific design criteria. • Use own recipe to gather ingredients and select equipment to make Bolognese sauce.
Year B	**Textiles: Stuffed toys** • Design a simple, proportional paper template for a stuffed toy and select suitable materials to make it from. • Practise joining two pieces of fabric together cutting neatly and accurately; threading a needle and sewing with a decorative blanket stitch. • Create and add decorations to fabric, including applique and decorative stitches, ensuring that the stitches are strong and secure. • Use blanket stitch to join two pieces of fabric together; stuff the toy carefully and repair any holes or gaps. Evaluate the toy against the design specification.	**Mechanical Systems: Automata toys** • Create a design for a functional automata toy for a window display using cams, followers and axles to create movement. • Use an exploded diagram to assemble a frame and join it together, measuring and cutting the components accurately using appropriate tools. • Explore the relationship between cam profiles and movement in order to decide which cams to use to fulfil the design criteria. • Design and fix a housing frame to conceal the mechanism. Finish and decorate the automata to fulfil the design brief and evaluate how effective the product is.	**Structures: Playgrounds** • Identify the differ types of structures used in a playground and use this information to design several pieces of playground apparatus to make. • Measure, mark, cut and shape wood using various techniques to build a range of play apparatus. Strengthen structures by manipulating materials and shapes. • Test structures to identify how successful they are. Adapt designs to improve and reinforce them. Add decorations. • Attach the structures to a base, reinforcing joins where necessary. Create a surrounding landscape with a range of features to enhance the playground environment.