St Peters C.E Primary School Curriculum Overview – Design Technology

Term	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Autumn	**Natural People**	**Hand Puppets** Textiles	**Sliders and Levers** Mechanisms	**Moving Monsters** Mechanisms	**Powered Boats** Mechanisms	**Mobile Phone Case** Textiles	**Moving Toy** Mechanisms
	EYFS Profile: **Development Matters EYFS** Explore different materials freely, 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. Join different materials and explore different textures Return to and build on their previous learning, refining ideas and developing their ability to represent them. **Creating with Materials** ELG Children at the expected level of development will: - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used; - Make use of props and materials when role playing characters in narratives and stories.	*KS2 NC Objectives:* Make a hand puppet for a character in a story with some sewn stitches on it. TBAT: • Explore and evaluate a range of existing puppets made from textiles • Use a template to create a design for a product •Design a functional and appealing product for a chosen user and purpose • Generate, develop, model and communicate their ideas as appropriate through talking and drawing • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use materials / joins according to their characteristics . • reflect on products made, explaining what likes and dislikes	*KS2 NC Objectives:* Create a suitable moving picture to illustrate part of a story for a younger child TBAT: • Explain what their product is and how it will work. • To generate and communicate ideas using sketches, drawing and digital software. • Select and use tools, equipment, skills and techniques to perform practical tasks, explaining their choices • Measure and mark out different materials when working with them. • Cut and shape a range of materials using different tools and techniques. • Assemble, join and combine a range of materials using different methods and techniques. • Apply a range of different finishing techniques to their made product. Evaluate a finished product against their design.	*KS2 NC Objectives:* Create a moving creature in a box suitable for a younger child TBAT: • Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. • Select from and use finishing techniques suitable for the product they are creating. • Investigate and analyse books, videos and products with pneumatic mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make.	*KS2 NC Objectives:* Create a 'powered' boat that can travel across a specified distance. TBAT: • To investigate and analyse a range of existing boat designs • To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose • To select from and use a wider range of construction materials and components, according to their functional properties • To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	*KS2 NC Objectives:* Make a fabric mobile phone case suitable for a 10-year-old child, to protect the item from dust or damage TBAT: • To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, whilst aimed at particular individuals or groups • Develop and communicate ideas through discussion, annotated drawings and drawings from different views. • To select from wider range of materials or textiles and use a wider variety of stitches according to their functional properties and aesthetic qualities • Evaluate their designs against the design criteria and consider the views of others to improve their work	*KS2 NC Objectives:* Make a moving toy using a cam mechanism to create an up and down movement. TBAT: • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, drawings from different views. • Produce detailed lists of tools, equipment and materials. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. • Compare the final product to the original design specification. • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work.
	Why here? Why now Links to Reading "Stick Man". Use of Autumnal resources with natural area e. sticks, leaves, conkers	*Why here? Why now?* Building upon cutting / joining skills in EYFS. Developing fine motor skills. Opportunity for speech and language using hand puppets to tell a story.	*Why here? Why now?* Possible links to RE (Christmas) History (transport) and or Science (food chains) Begin to explore mechanisms (2D)	*Why here? Why now?* Developing mechanisms into 3D application Links to Science	*Why here? Why now?* Applying and developing knowledge of mechanical systems to create movement Direct links within science floating and sinking Links to maths: measuring accurately, including nets – from 2D to 3D Links to History: exploration and travel	*Why here? Why now?* Links to Maths – measuring accurately. Builds upon sewing skills learnt in KS1. Links to Science (materials)	*Why here? Why now?* Links to Maths – measuring height / length in standard units, reinforce Science learning in Forces from Year 5, links to Art and Design, using and applying drawing skills. Building on experience of axles, axle holders and wheels that are fixed or free moving
	Key vocabulary: Cut, Join, Fix, fold Build, make, draw, like / don't like, better / worse	Key vocabulary hand puppet, template, sew, stitch, needle, fabric Ideas, join, decorate, worked / not worked	Key vocabulary: mechanism, lever, slider, slot, guide or bridge	Key vocabulary: Pneumatic, inflate, deflate, system, input, output, compressed, syringe,	Key vocabulary Buoyancy, floating, generate, power, solar, stored-energy, propulsion	Key vocabulary Running stitch, back stitch, over stitch, blanket stitch, thread, needle, seam, aesthetics,	Key vocabulary Rotary, oscillating, reciprocating movement, cam, follower, lever, slider, guide, spacer
	Core knowledge: TBAT: Create a figure using natural items such as sticks, leaves and conkers : • What key features do figures have? • They must use natural items that are available in the Autumn season • What natural items are the right shape or size for a human feature? • How will they join or arrange their pieces? • Will it be able to move or remain static? • How will they test if it has been successful?	**Core Knowledge** To know: • Hand puppets show a character, go over the hand and are used to tell a story • A template is used to create shapes exactly the same size / shape • A joining method means connecting two pieces of material together • We use a sewing needle and thread to create stitches • Drawing an idea is useful to see how a product will look	**Core Knowledge** To know: • A mechanism is the parts of an object that move together. • A slider mechanism moves an object from side to side. • A lever moves and object side to side using a fulcrum. • A slider mechanism has a slider, slots, guides and an object. • Bridges and guides are bits of card that purposefully restrict the movement of the slider.	**Core Knowledge** To know: • how a pneumatic system works (by drawing in, releasing and compressing air) • pneumatics can be part of other mechanisms • how sketches drawings and diagrams can communicate ideas	**Core Knowledge** To know: • To know humans have travelled for millennia using various floating vehicles for a variety of purposes e.g. from ancient civilisations that used them for hunting to modern exploration and travel. • To know how boats and watercrafts stay afloat and the concept of buoyancy using displacement of water e.g. huge weights can stay afloat due to the trapped air pocket. • To know that boats have evolved over time and the method of propulsion has predominantly changed from human/wind through to mechanical methods • To know how energy can be stored or utilised to move an object.	**Core Knowledge** To know: • To know that sewing is a method of joining fabric. • To know that different stitches can be used when sewing. • To understand the importance of tying a knot after sewing the final stitch To understand that it is important to design textiles with the client/ target customer in mind. • To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. • To understand the importance of consistently sized stitches.	**Core Knowledge** To know: • A cam is a mechanism that changes one sort of movement to another • There are different types of movements: rotary (goes around), oscillating (moving to and fro around a point) reciprocating (back and forwards in a straight line) • different shaped cams make different movements • A slider piece of rigid material that moves forwards and backwards in a straight line to create reciprocating motion. • Bridges and guides are bits of card that purposefully restrict movement • that a cross-section diagrams shows the inner working of a product
