

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

Term	EYFS	Y1	Y2	Y3	Y4	Y5	Y6	
	<b>Bird Scarers</b>	<b>Fruit Smoothies</b> Food	<b>'Soap-Box' Racing</b> Mechanisms	<b>Crazy Golf</b> Structures	<b>Sending Messages</b> Electrical	<b>Maze Games</b> Structures	<b>Burglar Alarms</b> Control / Monitoring	
	<i>EYFS Profile:</i>	<i>KS1 NC Objectives:</i>	<i>KS1 NC Objectives:</i>	<i>KS2 NC Objectives:</i>	<i>KS2 NC Objectives:</i>	<i>KS2 NC Objectives:</i>	<i>KS2 NC Objectives:</i>	
Sum mer	<p><b>Development Matters EYFS</b> 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.</p> <p><b>Creating with Materials</b> 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</p>	<p>Design and make a fruit snack for a class picnic</p> <p><b>TBAT:</b></p> <ul style="list-style-type: none"> <li>• Design appealing products for a particular user based on simple design criteria.</li> <li>• Generate initial ideas and design criteria through investigating a variety of fruits.</li> <li>• Communicate these ideas through talk and drawings.</li> <li>• Use simple utensils and equipment to peel, cut, slice and chop safely.</li> <li>• Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.</li> <li>• Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.</li> <li>• Evaluate ideas and finished products against design criteria, including intended user and purpose.</li> </ul>	<p>Create a model vehicle with wheels on an axle that can compete in a downhill race</p> <p><b>TBAT:</b></p> <ul style="list-style-type: none"> <li>• Explore and evaluate a range of products with wheels and axles.</li> <li>• Generate initial ideas and simple design criteria through talking and using own experiences.</li> <li>• Develop and communicate ideas through clearly labelled drawings (that show movement)</li> <li>• Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.</li> <li>• Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.</li> <li>• Evaluate their ideas throughout and their products against original criteria.</li> </ul>	<p>Create a 'crazy' golf course hole for family entertainment that includes a shell structure tunnel</p> <p><b>TBAT:</b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.</li> <li>• Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.</li> <li>• Order the main stages of making.</li> <li>• Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy.</li> <li>• Explain their choice of materials according to functional properties and aesthetic qualities.</li> <li>• Use finishing techniques suitable for the product they are creating.</li> <li>• Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.</li> <li>• Test and evaluate their own products against design criteria and the intended user and purpose.</li> </ul>	<p>Create a device that uses an electrical circuit (with a switch and bulbs or buzzers) to communicate a message.</p> <p><b>TBAT:</b></p> <ul style="list-style-type: none"> <li>• Develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups.</li> <li>• Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches and exploded diagrams.</li> <li>• Order the main stages of making.</li> <li>• Select from and use materials and electrical components according to their functional properties</li> <li>• Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> </ul>	<p>Create a maze game for suitable for a 5-6 year old child</p> <p><b>TBAT:</b></p> <ul style="list-style-type: none"> <li>• Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose.</li> <li>• Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.</li> <li>• Order the main stages of making.</li> <li>• Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> </ul>	<p>Create an alarm system (applying their knowledge of computing programming), with at least one sensor, to protect a valuable museum artefact.</p> <p><b>TBAT:</b></p> <ul style="list-style-type: none"> <li>• Develop a design specification for a functional product that responds automatically to changes in the environment.</li> <li>• Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams.</li> <li>• Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.</li> <li>• Create and modify a computer control program to enable their electrical product to respond to changes in the environment.</li> <li>• Understand and use electrical systems in their products.</li> <li>• Understand the use of computer control systems in products</li> <li>• Apply their understanding of computing to program, monitor and control their products.</li> </ul>	
	<i>Why here? Why now</i>	<i>Why here? Why now?</i>	<i>Why here? Why now?</i>	<i>Why here? Why now?</i>	<i>Why here? Why now?</i>	<i>Why here? Why now?</i>	<i>Why here? Why now?</i>	<i>Why here? Why now?</i>
	To look at how important basic characteristics of materials used	Links to Science, PSHE	Building upon learning of axle touched upon in previous term	Links to Local History / Geography topic on Cleethorpes as a tourist destination Links to Maths – 3D shapes Reinforces previous DT learning on strengthening and joining materials	Reinforcing the work in science on the topic of simple electrical circuits Links to Local History – Fishing industry use Morse Code as seen in local museum	Direct link through Literacy work on Greek legends. Links to History and study of Ancient Greeks Links to ICT – programming with Scratch	Link to ICT programming module using Micro:bits Builds upon Year 5 programming to include monitoring / sensors Links to Y4 Y6 Science – electrical circuits	
	<b>Key vocabulary:</b> shiny, noisy, circle, hanging, frighten, reflective	<b>Key vocabulary:</b> Fruit, vegetable, nutrients, healthy, sensory evaluation	<b>Key vocabulary:</b> Axle, axle holder, chassis, friction, dowel, wheels	<b>Key vocabulary:</b> Holes, tees, barriers, tunnels, boundary Cuboid, edge, prism, net, face, score, shell structure	<b>Key vocabulary:</b> switch, buzzer, circuits, cells, bulb, communicate, conductor, insulator	<b>Key vocabulary:</b> pathways, labyrinth, maze, grid, entry, exit, obstacles	<b>Key vocabulary:</b> Program, system, microcontroller, output devices, input devices, process	
<b>Core knowledge:</b> To manufacture a bird scarer to protect our seeds:	<b>Core Knowledge</b> <b>To know</b>	<b>Core Knowledge</b> <b>To know</b>	<b>Core Knowledge</b> <b>To know</b>	<b>Core Knowledge</b> <b>To know</b>	<b>Core Knowledge</b> <b>To Know:</b>	<b>Core Knowledge</b> <b>To Know:</b>		
<ul style="list-style-type: none"> <li>• How are birds scared away e.g. scarecrows?</li> <li>• It needs to be weatherproof so that it can be left outside.</li> <li>• Think of ways they might be scared, noises, flashes of light.</li> <li>• Link these to the properties of different materials e.g. foil</li> <li>• Put out in the environment and test their products effectiveness.</li> </ul>	<ul style="list-style-type: none"> <li>• where a range of fruit and vegetables come from e.g. farmed or grown at home.</li> <li>• Fruits have seed and vegetables do not</li> <li>• Fruits grow on trees or vines</li> <li>• Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell plate.</li> <li>• how to use the bridge method to chop soft fruits</li> </ul>	<ul style="list-style-type: none"> <li>• that mechanisms cause things to move.</li> <li>• some real-life items that use wheels</li> <li>• a wheel needs to be round to rotate and move</li> <li>• a wheel needs to be attached to an axle to rotate</li> <li>• Distinguish between fixed and freely moving axles.</li> <li>• the frame of a vehicle (chassis) needs to be balanced.</li> </ul>	<ul style="list-style-type: none"> <li>• how to stiffen and strengthen sheet material</li> <li>• how to create simple barriers, bridges and tunnels, making them stable</li> <li>• a crazy golf hole needs a tee, obstacles and a hole</li> </ul>	<ul style="list-style-type: none"> <li>• an electrical circuit is a complete path that allows electricity to flow through</li> <li>• a circuit consists of components such as a switch, batteries, lights and buzzers</li> <li>• switches complete or break circuits and control output components (lights / buzzers)</li> <li>• Electrical circuits are used in products to make them work</li> </ul>	<ul style="list-style-type: none"> <li>• different properties of some common materials and how these properties are used when designing and making structures.</li> <li>• ways of reinforcing structures, including using triangulation techniques to create stable maze walls</li> <li>• A range of different finishing techniques and choose ones that are suitable to create a quality product.</li> <li>• How labels and annotated drawings can be used to explain and communicate how a product is made and how it will work.</li> <li>• Surveys, interviews and questionnaires are used to find out the needs and wants of clients</li> </ul>	<ul style="list-style-type: none"> <li>• A Microkit is a small programmable computer circuit board (microcontroller), which can be used in designing and creating sensory.</li> <li>• A computer programme is a sequence of instructions in a programming language that can be used to control electrical components</li> <li>• System – a set of related parts or components that together achieve a desired outcome.</li> <li>• Process – how a computer program controls one or more output devices.</li> </ul>		

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