

# Progression of Strands across Year Groups 2022-2023



|        | Food  | Mechanisms  | Structures  | Textiles   | Electrical Systems | Digital World |
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| FS2    | Handle and use tools with independence, care and increasing control.  | To use a range of tools safely, competently and confidently.<br>To plan techniques for joining materials.<br>Handle and use tools with independence, care and increasing control.<br>Show greater control and proficiency in using tools such as scissors, paint brushes, pens and pencils.               | To use a range of tools safely, competently and confidently.<br>To use a range of materials to construct with.<br>Handle and use tools with independence, care and increasing control.<br>Show greater control and proficiency in using tools such as scissors, paint brushes, pens and pencils.            | To plan techniques for joining materials.<br>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; |                    |               |
| Year 1 | <b>Food: Fruit and Vegetable Smoothie</b><br>Children learn how to identify fruits and vegetables and then design and make a smoothie<br>Designing for others<br>Chopping fruit and vegetables<br>Making a smoothie<br>Evaluating and adapting designs<br>Describing and grouping fruits by texture and taste | <b>Mechanisms: Wheels and Axles</b><br>Pupils experiment with mechanisms and troubleshoot why some wheels don't rotate, before designing and building a moving vehicle<br>Designing mechanisms<br>Adapting Mechanisms<br>Measuring and cutting accurately<br>Following a design brief<br>Working to scale | <b>Structures: Windmills</b><br>Through the theme of windmills, pupils design and create their own structure and functioning windmill<br>Designing for others<br>Assembling different components to work together to create motion<br>Assembling accurately<br>Cutting neatly<br>Testing a finished product |  | NA                 | NA            |

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|        | Understanding the difference between fruit and vegetables  | Identifying materials commonly used for wheels<br>Researching and testing mechanisms<br>Understanding how an axle works  | Developing awareness of different structures for different purposes<br>Understanding how to turn 2D nets into 3D structures<br>Understanding what mechanisms are                  |   |    |    |
| Year 2 | <b>Food: A Balanced Diet</b><br>Pupils explore what makes a balanced diet and taste test combinations of different food groups before designing and making a wrap<br>Designing packaging for their smoothie<br>Preparing food safely and hygienically<br>Chopping safely using the bridge grip<br>Conducting product research<br>Evaluating a design<br>Understanding how fruit and vegetables grow<br>Knowing the food groups<br>Understanding what makes a balanced diet | <b>Mechanisms: Ferris Wheel</b><br>Pupils explore existing mechanisms in order to design, test and make their own big wheel style ride<br>Designing mechanisms<br>Measuring and cutting accurately, working to scale and following a design brief<br>Testing and adapting mechanisms<br>Researching mechanisms<br>Understanding how an axle works<br>Know materials commonly used for wheels |   | <b>Textiles: Pouches</b><br>Children design and make their own wallet or purse, learning to use running stitch to join two pieces of fabric together<br>Considering purpose in the design process<br>Threading a needle<br>Sewing a running stitch<br>Preparing fabrics for sewing<br>Discuss the making process and the finished product<br>Identifying parts of a needle (point and eye)<br>Understand the alternative ways of joining fabrics and embellishments | NA | NA |
| Year 3 | <b>Food: Eating Seasonally</b><br>Pupils learn about seasonality and how the climate a food is grown in can alter the way it tastes and make a crumble and tart using seasonal ingredients<br>Designing to criteria  |  | <b>Structures: Castles</b><br>Pupils learn more advanced construction techniques and plan for complex arrangements of structures with continual emphasis on evaluating throughout | <b>Textiles: Cushions</b><br>Pupils learn to sew cross stitch and appliqué and then apply this to the design and creation of a cushion<br>Designing for a purpose<br>Sewing cross stitch and using applique   |    |    |

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|        | <p>Safely preparing fruit and vegetables</p> <p>Following a recipe</p> <p>Tasting and evaluating their dessert</p> <p>Knowing what foods are in season and when</p> <p>Understanding the benefits of foods by their colour</p> <p>Knowing how climate alters the sweetness of food</p>   |  | <p>Planning for manufacture</p> <p>Establishing and using a design criteria to help focus and evaluate their work</p> <p>Using more demanding practical skills (paper engineering/paper folding techniques)</p> <p>Evaluating as they work</p> <p>Evaluating their own and other's final product</p> <p>Application of prior knowledge and increasing knowledge of nets</p> | <p>Compare to designs</p> <p>Construction of cushions</p> <p>Understanding that fabrics can be layered for effect</p> <p>Knowing different stitch types</p> |   |  |
| Year 4 | <p><b>Food: Adapting a Recipe</b></p> <p>Pupils adapt a recipe by adding or altering the ingredients and then work in groups to create a final design that falls within a set budget and design brief</p> <p>Working within a design brief</p> <p>Following but adapting a recipe</p> <p>Preparing food hygienically</p> <p>Discuss flavours identified</p> <p>Understanding the costs behind professional food preparation</p> <p>Understanding the factors that contribute to product design</p> | <p><b>Mechanisms: Slingshot Cars</b></p> <p>Pupils use kinetic energy to power slingshot cars, designing and making their own and then testing their effectiveness in time trials</p> <p>Developing designs using the views of others to improve them</p> <p>Using nets and tabs to design and make the car body</p> <p>Measuring, marking, cutting and assembling accurately</p> <p>Testing products in time trials</p> <p>Component names (chassis, axle etc.)</p> |   |   | <p><b>Electrical Systems: Torches</b></p> <p>Pupils are introduced to electricity and electrical safety before making a simple electric circuit to create a functioning torch</p> <p>Designing for others</p> <p>Creating neatly presented work</p> <p>Making an electrical circuit</p> <p>Evaluating to improve their work</p> <p>Testing their final products</p> <p>Electricity is energy</p> <p>Batteries are used to store electricity</p> <p>Know terminology of: insulator, conductor,</p> |  |

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|        |   | Car body shape can impact speed (air resistance)   |   |  | L.E.D., battery, coin cell batteries   |   |
| Year 5 | <b>Food: What Could Be Healthier?</b><br>Pupils adapt a bolognese recipe by adding or altering ingredients and learn about the ethical and hygienic issues of food<br>Adapting a recipe<br>Cutting and preparing vegetables hygienically<br>Cooking meat safely<br>Tasting and adapting the dish during cooking process<br>Know where meat comes from and understand ethical issues around beef<br>Know nutritional values of packaged food | <b>Mechanisms: Pop-Up Books</b><br>Pupils use a range of mechanisms and construction techniques to create a pop up story book for younger children<br>Planning using storyboards and designs, communicating through words and illustrations<br>Making functional components<br>Using layers and spacers to construct pages<br>Cutting and assembling with accuracy<br><br>Constantly evaluating progress against design<br>Understand sliders, levers and linkages<br>Understand structures and mechanisms |   |  | <b>Electrical Systems: Electric Greetings Cards</b><br>Pupils explore electric circuits and apply this knowledge to design and make their own electric greetings cards<br>Applying knowledge to generate design ideas<br>Identifying target audiences<br>Making circuits<br>Experimenting with circuits to consolidate knowledge of function<br>Testing function of product<br>Drawing circuit diagrams<br>Knowing the function of different components<br>Understanding the terminology: insulator, conductor, LED, battery |   |
| Year 6 |   |  | <b>Structures: Playgrounds</b><br>Pupils have the opportunity to be creative and experiment with a wide range of materials and equipment, applying prior knowledge of net and frame structures as well as bracing and cladding to | <b>Textiles: Waistcoats</b><br>After drawing a design in accordance with their own criteria, pupils learn how to measure, cut and assemble fabric to create a waistcoat<br>Designing for a process<br>Accurate cutting and joining, using running stitch |  | <b>Digital World- Navigating the world</b><br>Pupils can write a design brief from information submitted by a client<br>Pupils can develop design criteria to fulfil the client's request<br>Pupils can consider and suggest additional functions for my navigation tool. |

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|  |  |  | <p>design and make a playground</p> <p>Establishing and using a design criteria to help focus and evaluate their work</p> <p>Increasingly more demanding practical skills</p> <p>Selecting materials for their aesthetic and functional properties</p> <p>Make, strengthen and stiffen a range of structures</p> <p>Exploring existing playground structures</p> <p>Applying knowledge of construction techniques to realise design ideas</p> <p>Stabilising more complex structures using bracing</p> | <p>Creating something in a given style</p> <p>Evaluating work continually</p> <p>Knowing how to create hidden seams</p> |  | <p>Pupils can program an N,E, S,W cardinal compass</p> <p>Pupils can explain the key functions in my program, including any additions</p> <p>Pupils can explain how my program fits the design criteria and how it would be useful as part of a navigation tool</p> |
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