



## Milestones Document – Design and Technology in Year 4



Intent	
<p>At Russell Lower School, through Design and Technology, we want to ensure that all pupils: develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. We also want them to build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users. Our children will be able to critique, evaluate and test their ideas and products and the work of others, as well as understand and apply the principles of nutrition and begin to learn about cooking.</p>	
Subject Content, Knowledge and Skills:	Progression Outcomes
<p>When designing and making, pupils should be taught to:</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</li> <li>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>investigate and analyse a range of existing products</li> <li>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>understand how key events and individuals in design and technology have helped shape the world</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> </ul>	<p><b>Design</b></p> <p>I can generate and develop my ideas through discussion  I can design products that are functional and designed for purpose  I can create a cross sectional drawing of my design</p> <p><b>Make</b></p> <p><b>Could use QCA Units Torches 4c or 4E Light it up</b>  I can include a simple electrical circuit and switch in my product that produces one outcome e.g. Light (link to science, electricity)</p> <p><b>could use QCA Money Containers 4A</b>  I can join fabrics using a wider range of stitches. e.g. Back stitch, chain stitch, cross and blanket  I can choose the most appropriate joining technique to add a decoration to a piece of fabric</p> <p><b>could use Moving Toys QCA 5C</b>  I can use simple mechanical systems in my products e.g. Gears and cams  I can measure and mark a square section &amp; dowelling to the nearest cm  I can use a bradawl to mark hole positions  I can use a hand drill to make tight holes and loose holes</p> <p><b>Evaluate</b></p> <p>I can explain strengths and weaknesses of existing products  I can evaluate my work accurately against my own design criteria  I can discuss and describe well known designers and inventors and their work</p> <p><b>Food</b></p> <p><b>Could use QCA 5B Bread, and pizza making – link Romans</b>  I understand all sections of the Eat Well plate and why they differ in size  I can use the right tools to slice, mix, spread, knead and bake  I can weigh ingredients to the nearest gram accurately  I understand that different foods are produced in different areas of the world and give some of the reasons for this</p>

<ul style="list-style-type: none"> <li>• understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li> <li>• apply their understanding of computing to program, monitor and control their products.</li> </ul> <p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>• understand and apply the principles of a healthy and varied diet</li> <li>• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>• understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul>	<p>I understand that food is processed into different ingredients e.g. Milk into butter</p>
<p><b>Key Vocabulary and information:</b></p> <p>Annotated diagram – labelled drawing  Appearance – way it looks  Brittle – breaks easily  Card – thick paper  Components – parts  Cross-section – view of object cut through  Design – create a plan  Design brief – a statement of what needs to be designed/made  Design process – identify need, design, plan, make and evaluate  Dismantle – to take apart  Enlarged view – made bigger to see more detail  Equipment – tools and materials needed  Evaluation – assessment of how an artefact functions compared to its specification  Exploded diagram – blown apart picture to show joins  Final design – the chosen one to produce  Fold – double a material against itself (mountain fold V, fan fold – V from a point, U fold)  Function – intended use of a product  Graphics – use of words and pictures to communicate  Ingredient – a part in food technology, recipe (the ingredients needed to make a 'dish')  Investigation – trying things out  Landscape/portrait  Malleable – can be worked into different shapes/bent, Rigid – not flexible  Mark out, measure, mind map</p>	<p><b>Building on from...</b></p> <p>The knowledge and understanding of D&amp;T children have gained in Year 3.</p> <p>Design, make and evaluate:</p> <ul style="list-style-type: none"> <li>• Mechanical systems (levers and linkages) and printing blocks to produce a pop-up book of a cave man story</li> <li>• Shell/frame structures to produce structures and bridges</li> <li>• Cooking and nutritional skills to produce sandwich snacks</li> </ul> <p><b>What comes next...</b></p> <p>Further development of knowledge, understanding and skills needed to engage in an iterative process of designing and making.</p>

Mobile – hung and blown by air currents

Mock up – a temporary model

Modify – to alter/change

Net – opened out box etc.

Opaque (cannot see through), translucent (let light through but image is not clear), transparent (see straight through – like glass)

Questionnaire

Risk assessment – identify hazards/dangers and act accordingly

Sketch – a rough drawing

Specification – what a product must do

Template – a shape drawn to help cutting out

Texture – surface 'quality' eg. Rough

3 dimensional – has height, width and length

2 dimensional – has height and width only



