



## **Subject coverage and progression in Design & Technology at Reepham Primary School.**

At Reepham Primary School, we aim to offer a range of practical and creative learning opportunities for design & technology and food technology in order to foster our children's enthusiasm for and understanding of these subjects which they will use throughout their lives.

We adopt the following purpose and aims of the KS1 and KS2 Design & Technology National Curriculum:

### **Purpose of study**

Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.

### **Aims**

The curriculum for design and technology aims 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
- 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
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

**In order to ensure progression in the children’s learning, teachers will use the following guidance (from the D&T Association) when planning and evaluating. Where the specific skill has not been taught in the previous year, teachers will include all appropriate coverage in their lessons.**

DESIGNING – Understanding Users, Contexts and Purposes		
KS1	Lower KS2	Upper KS2
<p>-work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</p> <ul style="list-style-type: none"> <li>• state what products they are designing and making</li> <li>• say whether their products are for themselves or other users</li> <li>• describe what their products are for</li> <li>• say how their products will work</li> <li>• say how they will make their products suitable for their intended users</li> <li>• use simple design criteria to help develop their ideas</li> </ul>	<p>-gather information about the needs and wants of particular individuals and groups</p> <ul style="list-style-type: none"> <li>• develop their own design criteria and use these to inform their ideas</li> </ul>	<p>-carry out research, using surveys, interviews, questionnaires and web-based resources</p> <ul style="list-style-type: none"> <li>• identify the needs, wants, preferences and values of particular individuals and groups</li> <li>• develop a simple design specification to guide their thinking</li> </ul>
	<p>-work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</p> <ul style="list-style-type: none"> <li>• describe the purpose of their products</li> <li>• indicate the design features of their products that will appeal to intended users</li> <li>• explain how particular parts of their products work</li> </ul>	
DESIGNING – Generating, Developing, Modelling and Communicating Ideas		
KS1	Lower KS2	Upper KS2
<p>-generate ideas by drawing on their own experiences</p> <ul style="list-style-type: none"> <li>• use knowledge of existing products to help come up with ideas</li> <li>• develop and communicate ideas by talking and drawing</li> <li>• model ideas by exploring materials, components and construction kits and by making templates and mockups</li> <li>• use information and communication technology, where appropriate, to develop and communicate their ideas</li> </ul>	<ul style="list-style-type: none"> <li>• generate realistic ideas, focusing on the needs of the user</li> <li>• make design decisions that take account of the availability of resources</li> </ul>	<ul style="list-style-type: none"> <li>• generate innovative ideas, drawing on research</li> <li>• make design decisions, taking account of constraints such as time, resources and cost</li> </ul>
	<ul style="list-style-type: none"> <li>• share and clarify ideas through discussion</li> <li>• model their ideas using prototypes and pattern pieces</li> <li>• use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li> <li>• use computer-aided design to develop and communicate their ideas</li> </ul>	

MAKING - Planning		
KS1	Lower KS2	Upper KS2
<ul style="list-style-type: none"> <li>• plan by suggesting what to do next</li> <li>• select from a range of tools and equipment, explaining their choices</li> <li>• select from a range of materials and components according to their characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• order the main stages of making</li> </ul>	<ul style="list-style-type: none"> <li>• produce appropriate lists of tools, equipment and materials that they need</li> <li>• formulate step-by-step plans as a guide to making</li> </ul>
	<ul style="list-style-type: none"> <li>• select tools and equipment suitable for the task</li> <li>• explain their choice of tools and equipment in relation to the skills and techniques they will be using</li> <li>• select materials and components suitable for the task</li> <li>• explain their choice of materials and components according to functional properties and aesthetic qualities</li> </ul>	
MAKING – Practical skills and techniques		
KS1	Lower KS2	Upper KS2
<ul style="list-style-type: none"> <li>• follow procedures for safety and hygiene</li> <li>• use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</li> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> <li>• use finishing techniques, including those from art and design</li> </ul>	<ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components with some accuracy</li> <li>• assemble, join and combine materials and components with some accuracy</li> <li>• apply a range of finishing techniques, including those from art and design, with some accuracy</li> </ul>	<ul style="list-style-type: none"> <li>• accurately measure, mark out, cut and shape materials and components</li> <li>• accurately assemble, join and combine materials and components</li> <li>• accurately apply a range of finishing techniques, including those from art and design</li> <li>• use techniques that involve a number of steps</li> <li>• demonstrate resourcefulness when tackling practical problems</li> </ul>
	<ul style="list-style-type: none"> <li>• follow procedures for safety and hygiene</li> <li>• use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li> </ul>	

EVALUATING – Own Ideas and Products		
KS1	Lower KS2	Upper KS2
<ul style="list-style-type: none"> <li>• talk about their design ideas and what they are making</li> <li>• make simple judgements about their products and ideas against design criteria</li> <li>• suggest how their products could be improved</li> </ul>	<ul style="list-style-type: none"> <li>• refer to their design criteria as they design and make</li> <li>• use their design criteria to evaluate their completed products</li> </ul>	<ul style="list-style-type: none"> <li>• critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>• evaluate their ideas and products against their original design specification</li> </ul>
	<ul style="list-style-type: none"> <li>• identify the strengths and areas for development in their ideas and products</li> <li>• consider the views of others, including intended users, to improve their work</li> </ul>	
EVALUATING – Existing Products		
KS1	Lower KS2	Upper KS2
<p>Explore what products are</p> <ul style="list-style-type: none"> <li>• who products are for</li> <li>• what products are for</li> <li>• how products work</li> <li>• how products are used</li> <li>• where products might be used</li> <li>• what materials products are made from</li> <li>• what they like and dislike about products</li> </ul>	<p>investigate and analyse:</p> <ul style="list-style-type: none"> <li>• who designed and made the products</li> <li>• where products were designed and made</li> <li>• when products were designed and made</li> <li>• whether products can be recycled or reused</li> </ul>	<p>investigate and analyse:</p> <ul style="list-style-type: none"> <li>• how much products cost to make</li> <li>• how innovative products are</li> <li>• how sustainable the materials in products are</li> <li>• what impact products have beyond their intended purpose</li> </ul>
	<p>Investigate &amp; analyse how well products have been designed</p> <ul style="list-style-type: none"> <li>• how well products have been made</li> <li>• why materials have been chosen</li> <li>• what methods of construction have been used</li> <li>• how well products work</li> <li>• how well products achieve their purposes</li> <li>• how well products meet user needs and wants</li> </ul>	
EVALUATING – Key Events and Individuals		
KS1	Lower KS2	Upper KS2
Not a requirement	Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	

TECHNICAL KNOWLEDGE – Making Products Work		
KS1	Lower KS2	Upper KS2
<p>know:</p> <ul style="list-style-type: none"> <li>• about the simple working characteristics of materials and components</li> <li>• about the movement of simple mechanisms such as levers, sliders, wheels and axles</li> <li>• how freestanding structures can be made stronger, stiffer and more stable</li> <li>• that a 3-D textiles product can be assembled from two identical fabric shapes</li> <li>• that food ingredients should be combined according to their sensory characteristics</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul>	<p>know:</p> <ul style="list-style-type: none"> <li>• how mechanical systems such as levers and linkages or pneumatic systems create movement</li> <li>• how simple electrical circuits and components can be used to create functional products</li> <li>• how to program a computer to control their products</li> <li>• how to make strong, stiff shell structures</li> <li>• that a single fabric shape can be used to make a 3D textiles product</li> <li>• that food ingredients can be fresh, pre-cooked and processed</li> </ul>	<p>know:</p> <ul style="list-style-type: none"> <li>• how mechanical systems such as cams or pulleys or gears create movement</li> <li>• how more complex electrical circuits and components can be used to create functional products</li> <li>• how to program a computer to monitor changes in the environment and control their products</li> <li>• how to reinforce and strengthen a 3D framework</li> <li>• that a 3D textiles product can be made from a combination of fabric shapes</li> <li>• that a recipe can be adapted by adding or substituting one or more ingredients</li> </ul>
	<p>know:</p> <ul style="list-style-type: none"> <li>• how to use learning from science to help design and make products that work</li> <li>• how to use learning from mathematics to help design and make products that work</li> <li>• that materials have both functional properties and aesthetic qualities</li> <li>• that materials can be combined and mixed to create more useful characteristics</li> <li>• that mechanical and electrical systems have an input, process and output</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul>	
COOKING & NUTRITION – Where Food Comes From		
KS1	Lower KS2	Upper KS2
<p>know:</p> <ul style="list-style-type: none"> <li>• that all food comes from plants or animals</li> <li>• that food has to be farmed, grown elsewhere (e.g. home) or caught</li> </ul>	<p>know:</p> <ul style="list-style-type: none"> <li>• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</li> </ul> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• that seasons may affect the food available</li> <li>• how food is processed into ingredients that can be eaten or used in cooking</li> </ul>	

COOKING & NUTRITION – Food Preparation, Cooking & Nutrition		
KS1	Lower KS2	Upper KS2
know: <ul style="list-style-type: none"> <li>• how to name and sort foods into the five groups in the eatwell plate</li> <li>• that everyone should eat at least five portions of fruit and vegetables every day</li> <li>• how to prepare simple dishes safely and hygienically, without using a heat source</li> <li>• how to use techniques such as cutting, peeling and grating</li> </ul>	know: <ul style="list-style-type: none"> <li>• that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the eatwell plate</li> <li>• that to be active and healthy, food and drink are needed to provide energy for the body</li> </ul>	know: <ul style="list-style-type: none"> <li>• that recipes can be adapted to change the appearance, taste, texture and aroma</li> <li>• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</li> </ul>
	know: <ul style="list-style-type: none"> <li>• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</li> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>	