



Whole School Design Technology Overview

Class	Year A	Year B
Holly Berries	Building structures Can you build a strong house for the Three Little Pigs? Chinese cuisine ??????	Healthy eating (Farm to fork) What would a healthy picnic look like? Moving toys – aeroplane ???? Pop up books – levers???
Chestnut	Egyptian thrones Can you build a throne fit for a Pharaoh? ????????	Musical Instruments ??????? Italian cuisine ?????? Roman catapults ??????
Maple	Moving toys – cam, pulley, lever, linkages ??????? Food – rationing Can you create a meal that could have been eaten during WWII?	Textiles – phone cases How can you protect the screen of your phone or tablet? Circuits ??????

Holly Berries

Year A	Year B
Building structures Can you build a strong house for the Three Little Pigs? Chinese cuisine ?????	Healthy eating (Farm to fork) What would a healthy picnic look like? Moving toys – aeroplane ????

Knowledge

Through a variety of creative and practical activities, children should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts, for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment.

When designing and making the children should be taught to:

Design <ul style="list-style-type: none"> Design purposeful, functional, appealing projects for themselves and others based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. 	Make <ul style="list-style-type: none"> Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
Evaluate <ul style="list-style-type: none"> Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria. 	Technical Knowledge <ul style="list-style-type: none"> Build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms (for example levers, sliders, wheels and axles) in their products>

Cooking and nutrition – children should be taught to:

- Use the basic principles of a healthy and varied diet to prepare dishes.
- Understand where food comes from.

Skills

Mastering practical skills:

Food <ul style="list-style-type: none"> Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales. Assemble or cook ingredients. 	Materials <ul style="list-style-type: none"> Cut materials safely using the tools provided. Measure and mark out to the nearest cm. Demonstrate a range of cutting and shaping techniques, such as tearing, cutting, curling and folding. Demonstrate a range of joining techniques such as gluing, hinges or combining materials to strengthen.
Construction <ul style="list-style-type: none"> Create products using levers, wheels and winding mechanisms. 	

Designing, making, evaluating and improving:

- Design products that have a clear purpose and an intended user.
- Make products, refining the design as the work progresses.

Taking inspiration from design throughout history

- Explore objects and designs to identify likes and dislikes of the designs.
- Suggest improvements to existing designs.
- Explore how products have been created.

Chestnut	
Year A	Year B
Egyptian thrones Can you build a throne fit for a Pharaoh? ????????	Musical Instruments ??????? Italian cuisine ?????? Roman catapults ??????
Knowledge	
<p>Through a variety of creative and practical activities, children should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts, for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment.</p> <p>When designing and making the children should be taught to:</p>	
Design <ul style="list-style-type: none"> Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose, aimed at particular groups or individuals. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer aided design. 	Make <ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks, for example, cutting, shaping, joining and finishing, accurately. 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.
Evaluate <ul style="list-style-type: none"> Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals in design technology have helped to shape the world. 	Technical Knowledge <ul style="list-style-type: none"> Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Understand and use mechanical systems in their products, for example, gears, pulleys, cams, levers and linkages. Understand and use electrical systems in their products for example, series circuits incorporating switches, bulbs, buzzers and motors. Apply their understanding of computing to programme, monitor and control their products.
<p>Cooking and nutrition – children should be taught to:</p> <ul style="list-style-type: none"> Understand and apply the principles of a healthy and varied diet. Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 	

Skills

Mastering practical skills

<p>Food</p> <ul style="list-style-type: none"> • Prepare food hygienically using the appropriate utensils. • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). 	<p>Materials</p> <ul style="list-style-type: none"> • Cut materials accurately and safely by selecting appropriate tools. • Measure and mark out to the nearest mm. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). • Select appropriate joining techniques.
<p>Electricals</p> <ul style="list-style-type: none"> • Create series and parallel circuits. 	<p>Mechanics</p> <ul style="list-style-type: none"> • Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).
<p>Construction</p> <ul style="list-style-type: none"> • Choose suitable techniques to construct products. • Strengthen materials by using suitable techniques. 	

Designing, making, evaluating and improving:

- Design with purpose by identifying opportunities to design.
- Make products work efficiently (such as by carefully selecting materials).
- Refine work and techniques as work progresses, continually evaluating the product design.

Taking inspiration from design throughout history

- Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for their designs.
- Improve upon existing designs, giving reasons for choices.
- Disassemble products to understand how they work.

Maple	
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Moving toys – cam, pulley, lever, linkages ??????? Food – rationing Can you create a meal that could have been eaten during WWII?	Textiles – phone cases How can you protect the screen of your phone or tablet? Circuits ?????
Knowledge	
<p>Through a variety of creative and practical activities, children should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts, for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment.</p> <p>When designing and making the children should be taught to:</p>	
Design <ul style="list-style-type: none"> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose, aimed at particular groups or individuals. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer aided design. 	Make <ul style="list-style-type: none"> • Select from and use a wider range of tools and equipment to perform practical tasks, for example, cutting, shaping, joining and finishing, accurately. • 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.
Evaluate <ul style="list-style-type: none"> • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • Understand how key events and individuals in design technology have helped to shape the world. 	Technical Knowledge <ul style="list-style-type: none"> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. • Understand and use mechanical systems in their products, for example, gears, pulleys, cams, levers and linkages. • Understand and use electrical systems in their products for example, series circuits incorporating switches, bulbs, buzzers and motors. • Apply their understanding of computing to programme, monitor and control their products.
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Skills

Mastering practical skills

<p>Food</p> <ul style="list-style-type: none"> • Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of baking and cooking techniques. • Create and refine recipes including ingredients, methods, cooking times and temperatures. 	<p>Materials</p> <ul style="list-style-type: none"> • Cut materials with precision and refine the finish with appropriate tools, such as sanding wood after cutting or more precise scissor cut after roughly cutting out a shape. • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric which may require sharper scissors than would be used to cut paper).
<p>Textiles</p> <ul style="list-style-type: none"> • Create objects that employ a seam allowance. • Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • Use the qualities of materials to create a suitable visual effect in the decoration of textiles. 	<p>Mechanics</p> <ul style="list-style-type: none"> • Convert rotary motion to linear using cams. • Use innovative combinations of electronics (or computing) and mechanics in product designs.
<p>Computing</p> <ul style="list-style-type: none"> • Use code to control and monitor models or products. 	<p>Construction</p> <ul style="list-style-type: none"> • Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).

Designing, making, evaluating and improving:

- Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
- Make products through stages of prototypes, making continual refinements.
- Ensure products have a high quality finish, using art skills where appropriate.
- Use prototypes and cross sectional diagrams.

Taking inspiration from design throughout history

- Combine elements of design from a range of inspirational designers from history, giving reasons for their choices.
- Create innovative designs that improve upon existing products.
- Evaluate the design of products so as to suggest improvements to the user experience.

