Amberley Parochial School

Providing the rich soil that enables our children to develop deep roots and flourish.

Immersion Curriculum: Design and Technology Y5/6 (Cycle B)

At Amberley, each unit of design and technology contains the key elements of: mastering practical skills, design, make, evaluate and improve, and taking inspiration from design though a topic of either food, materials, textiles, electrical and electronics, computing, construction and mechanics.

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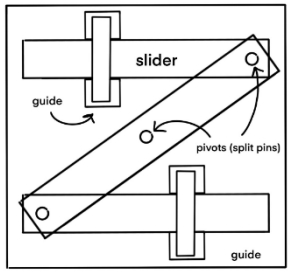
Intent:

For all learners to…

- work with tools, equipment, materials and components to make quality products,
- making creative and informed choices on the way
- pupils to critique, evaluate and test their ideas and products and works of others
- foster enjoyment in designing and making things for a specific purpose
- pupils to have progressive development of knowledge and skills of the DT curriculum
- pupils learn to take managed risks becoming resourceful and innovative learners

Impact:

The children of Amberley will understand and develop the traits and skills needed to become a Design Technologist. They understand that DT is about solving problems, and they strive to be creative, aiming to show perseverance when solving these problems.

<table>
<tr><th colspan="2">Project</th><th>Milestone for end of Year 6</th><th>National Curriculum Objectives:
By the end of the Key Stage 2</th><th>Technical drawing/photo</th></tr>
<tr><td colspan="2">Moving Pictures (Converting rotary motion to linear)</td><td>• Convert rotary motion to linear using cams</td><td rowspan="3"><u>Design</u>
• 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
• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
<u>Make</u>
• 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
<u>Evaluate</u>
• 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 and technology have helped shape the world
<u>Technical knowledge</u>
• 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 program, monitor and control their products.</td><td rowspan="3">  </td></tr>
<tr><th>Duration</th><th>Cycle</th><td rowspan="2">Ongoing Milestones:
• Develop a range of practical skills to create products (such as cutting, drilling, screwing, nailing, gluing, filing and sanding)
• Create innovative designs that improve upon existing products
• Evaluate the design of products so as to suggest improvements to the user experience
• Design with 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, cross sectional diagrams ~~and computing aided designs to represent designs~~</td></tr>
<tr><td>Term 1 & 2</td><td>B</td><td>Key Vocabulary for the Year:

Refer to whole school vocabulary progression document.</td></tr>
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<td rowspan="3">Motorised Vehicles</td>
<td>

Use innovative combinations of electronics (or computing) and mechanics in product designs
Cut materials with precision and refine the finish with appropriate tools (~~such as sanding wood after cutting~~ or a more precise scissor cut after roughly cutting out a shape)
Combine elements of design from a range of inspirational designers throughout history giving reasons for choices
Show an understanding of the quality of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper)

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<td rowspan="2"><u>Design</u>

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
generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

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<u>Evaluate</u>

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 and technology have helped shape the world

<u>Technical knowledge</u>

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]
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apply their understanding of computing to program, monitor and control their products.

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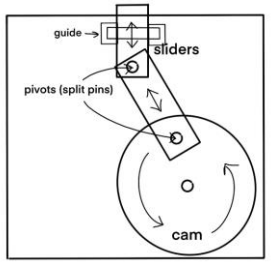
<td rowspan="3"> 
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<tr><th>Duration</th><th>Cycle</th></tr>
<tr><td>Term 3 & 4</td><td>B</td></tr>
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<td>Key Vocabulary for the Year:

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<td>Lap Joint Box
(memory, time capsule, keepsake, jewellery)</td>
<td>

Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a 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 may require sharper scissors than would be used to cut paper).
Combine elements of design from a range of inspirational designers throughout history giving reasons for choices

Ongoing Milestones:

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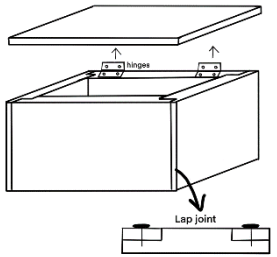
<td rowspan="2"> 
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<tr><th>Duration</th><th>Cycle</th></tr>
<tr><td>Term 5 & 6</td><td>B</td></tr>
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<tr><th colspan="2">Focus</th><th>Milestone for the end of Year 6</th><th>National Curriculum Objectives:
By the end of Key Stage 2</th></tr>
<tr><td colspan="2">Food: Burritos</td><td rowspan="2">• 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.</td><td rowspan="2">• 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.</td></tr>
<tr><th>Duration</th><th>Cycle</th></tr>
<tr><td>1 week</td><td>B</td><td rowspan="2">Ongoing:

• 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, cross-sectional diagrams and computer aided designs to represent designs.

Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.
• Create innovative designs that improve upon existing products.
• Evaluate the design of products so as to suggest improvements to the user experience.</td><td>Key Vocabulary for the Year:

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