

Design & Technology

Intent

At Butler's Hill we aim to nurture creativity and innovation through design by inspiring children through a broad range of practical experiences which solve real and relevant problems within a variety of different contexts. This process encourages children to critically evaluate existing products and then take risks when designing and creating solutions to the problems. As part of the process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to support this process.

Implementation

At Butler's Hill our Design and Technology curriculum is taught using inspiring sequences of learning. Our curriculum encourages the children to design purposeful, functional and appealing products based on design criteria. The concepts we follow to achieve this are; user, innovation, implementation and evaluation. We also explicitly teach the importance of safety throughout school. All concepts are revisited each year using a sequence of learning that are progressive and builds upon prior learning which will help children build on prior knowledge alongside introducing new skills, knowledge and challenge. Through these lessons, we intend to inspire pupils and practitioners to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.



| EYFS Curriculum | Key Stage One National Curriculum |
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| <p>ELG: Creating with Materials</p> <p>Children at the expected level of development will:</p> <ul style="list-style-type: none"> - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used; <p>- Make use of props and materials when role playing characters in narratives and stories.</p> | <p>Through a variety of creative and practical activities, pupils 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, pupils should be taught to:</p> <p>Design: design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Make: select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <p>Evaluate: explore and evaluate a range of existing products, evaluate their ideas and products against design criteria</p> <p>Technical knowledge: 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</p> <p>Cooking and nutrition</p> <p>As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open</p> <p>a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now</p> <p>and in later life.</p> <p>Pupils should be taught to:</p> <p>Key stage 1</p> <ul style="list-style-type: none"> ♣ use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from |

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| <p><u>Aims and Values</u> <u>Caring, creative & Confident Values</u></p> <ul style="list-style-type: none"> • Resilience • Respectful • Responsible | <p><u>Enrichment opportunities</u></p> <p><u>Year 1</u> Food tasting as part of the science – senses Eco monitor enrichment/workshops</p> <p><u>Year 2</u> Food tasting from around the world Eco monitor enrichment/workshops</p> | <p><u>Assessment/sticky knowledge</u></p> <ul style="list-style-type: none"> • Assessment grid to know % of children that are meeting ARE – subject leader to identify any areas where a large % of children have gaps. • Children self-evaluate and peer evaluate at the end of a product • Pupil interviews |
| <p><u>Concepts</u> User Innovation - design Implementation – skills / making Evaluation</p> | <p><u>Local community links</u> Market – buy food for taste testing Shopping for products in a local store/market</p> | <p><u>Cross Curricular Links</u> Science – healthy living PSHE (Jigsaw) Healthy Me English – writing instructions, designing and labelling Maths – measurements Eco friendly school – looking after the environment</p> |

| | EYFS | Year 1 | Year 2 | Year 3 |
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| Templates and Joining | <p>Know how to join two pieces of material using a joining technique (e.g. gluing)</p> <p>Know how to weave wool in and out of a threading card</p> <p>Know how to thread beads on to wool</p> | <p>Know the function of a template</p> <p>Know how a textile product is constructed</p> <p>Know how to join two pieces material using different joining techniques</p> <p>Know relevant safety protocols</p> <p>Apply an increasing range of finishing techniques</p> | <p>Know the purpose of a template</p> <p>Know how to decorate fabric by applying beads and sequins</p> <p>Know how to use fabrics based on their suitability to the product</p> <p>Know how to securely join fabric together using a running stitch</p> <p>Know relevant safety protocols</p> | <p>Know that a single fabric shape can be used to make a 3D textile product.</p> <p>Know that materials can be combined and mixed to create more useful characteristics.</p> <p>Know how to accurately assemble, join and combine most materials.</p> |
| Structures | <p>Know how to make a freestanding structure from simple blocks / boxes</p> <p>Know how to make a structure taller</p> <p>Know how to make a structure more stable</p> | <p>Know how to make freestanding structures stronger and stable</p> <p>Know how to join materials: measuring, cutting, shaping and joining</p> <p>Know how to make a card hinge</p> <p>Know how to make materials to make simple joints using glue / tape</p> | | <p>Know how to make strong, stiff shell structures for a purpose.</p> <p>Know how to accurately apply several finishing techniques.</p> |
| Mechanisms | <p>Know vehicles on wheels can be moved by pulling and pushing</p> | <p>Know how to create a moving picture using a lever</p> | <p>Know the function of wheels, axles and axle holders</p> | <p>Know how mechanical systems such as levers and linkages create movement.</p> |

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| | | <p>Know how to make a lever by joining card strips with paper fasteners</p> <p>Know fixing techniques and when to use them e.g. masking tape to secure a slider</p> | <p>Know the difference between fixed and free moving axles</p> <p>Know how to assemble: fixed axels with accurate joining and rotating axle with fixed wheels</p> <p>Know the tools: junior hacksaw and vice</p> <p>Know and use technical vocabulary relevant to the mechanism</p> | <p>Know that simple electrical circuits and components can be used to create functional products.</p> <p>Know that mechanical and electrical systems have an input, process, and output.</p> |
| Nutrition | <p>Know how to mix ingredients</p> <p>Know how to follow simple health and safety procedures</p> <p>Know how to roll out dough</p> <p>Know how to use cutters</p> <p>Know how to eat my dinner with a knife and fork</p> <p>Know how to use jugs / spoons / scoops with accuracy</p> | <p>Know how to hold a knife correctly using a simple bridge hold</p> <p>Know how to peel, cut, chop and spread using a knife such as bread, bananas etc</p> <p>Know how to follow safety procedures</p> <p>Know some food are unhealthy because they contain sugars or fats</p> <p>Know which foods are healthy/unhealthy</p> | <p>Know how to prepare food safely and hygienically without using a heat source</p> <p>Know how to use a bridge cutting technique</p> <p>Know how to measure or weigh using measuring cups or electronic scales</p> <p>Know the main sources of food</p> <p>Know that some foods are farmed, grown or caught</p> | <p>Know that food is farmed, reared, grown elsewhere (e.g., home, allotments), exported, imported, or caught. This can be on a local, regional, and international scale.</p> <p>Know that seasons and weather affect food availability (begin)</p> <p>Know how food is processed into ingredients that can be eaten or used in cooking (begin)</p> <p>Know how to prepare and cook a variety of savoury and some sweet dishes safely and</p> |

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| | | | <p>Know where food comes from.</p> <p>Know that some foods are bad because they contain lots of sugar or fats and can give some examples</p> <p>Know how to evaluate a food product against certain aspects (e.g. taste, smell, appearance)</p> | <p>hygienically, including the use of a heat source.</p> <p>Know how to use a wide range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading, and baking.</p> <p>Know that a healthy diet is made up of a variety and balance of different foods and drinks, as depicted on 'The Eatwell Plate.'</p> <p>Know that to be active and healthy, food is needed to provide energy for the body.</p> <p>Know that recipes can be adapted to change the taste, texture, aroma, and appearance.</p> <p>Know that different foods contain substances that are needed for health e.g. water, fibre, vitamins, minerals, and nutrients.</p> <p>Know that exercise is also important for our wellbeing and fitness.</p> |
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| | Autumn | Spring | Summer |
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| EYFS | | <p>Why do people celebrate Chinese New Year?</p> <p>Use various construction materials</p> <p>Who will save the day?</p> <p>Show interest in and describe the texture of things.</p> | <p>Where are they hiding?</p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</p> <p>Where will the map lead us?</p> <p>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>Share their creations, explaining the process they have used.</p> |
| Year 1 | <p>Who is Michael Recycle?</p> <p>Making a musical instrument from recycled materials</p> <p>3D modelling</p> | | <p>What's in the pond?</p> <p>Sliders and levers (puppet theatre)</p> <p>What happened to the children of WW2?</p> <p>Nutrition (sandwich making)</p> |
| Year 2 | <p>Where in the world am I?</p> <p>Nutrition (baking)</p> | | <p>Who was Zachariah Green?</p> <p>Textiles (sewing)</p> <p>Were dinosaurs real?</p> <p>Wheels and axels</p> <p>3D modelling</p> |

| | Design |
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| EYFS | <p>Know how to think about what is going to be made before making it</p> |
| Year 1 | <p>Know how to design products that have a purpose and intended user</p> <p>Know how to communicate a design using a drawing</p> <p>Know that before a product is made it has to be designed</p> <p>Know that products are usually made in factories, often by machinery</p> |
| Year 2 | <p>Know that a product has to be designed for a purpose</p> <p>Know that a design is improved before the final design is produced</p> <p>Know how to use a design criterion to develop their design/product</p> <p>Know how to use knowledge of existing products to develop designs</p> <p>Know how to develop, model and communicate a design through drawing and using templates</p> |
| Lower KS2 | <p>Know how to work confidently in a range of contexts, e.g., home, school, leisure, culture, industry, and wider environment.</p> <p>Know how to describe the purpose of their products.</p> <p>Know how to indicate design features of their products that will appeal to intended users.</p> <p>Know how to gather information about the needs and wants of individuals or groups.</p> <p>Know how to develop their own design criteria and use this to inform their ideas.</p> <p>Know how to share and clarify ideas confidently, through discussion.</p> <p>Know how to model ideas using prototypes and pattern pieces.</p> <p>Know how to use annotated sketches, some cross-sectional drawings and computer-aided design packages, to develop and communicate ideas.</p> <p>Know to generate realistic ideas, focusing on the needs of the user.</p> |

| | Make |
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| EYFS | <p>Know that planning is suggesting what to do next</p> <p>Know how to select appropriate materials and components</p> |
| Year 1 | <p>Know how to make their design using appropriate techniques</p> <p>Know how to measure cut and shape different materials (with support)</p> <p>Know procedures for safety and hygiene</p> <p>Know how to correctly hold a pair of scissors</p> <p>Know how to cut accurately along different sizes and shapes of lines</p> <p>Know that tracing of simple lines can be used to develop dexterity</p> <p>Know that there are different ways to join materials e.g. glue / Sellotape</p> |
| Year 2 | <p>Know that product designs can be made out of different materials</p> <p>Know that certain materials are used for a specific purpose</p> <p>Know how to use tools safely and appropriately</p> <p>Know that tracing of simple lines shapes and patterns can be used to make a template</p> <p>Know how to use appropriate finishing techniques to improve the appearance of their product</p> <p>Know how to make joins and combine materials and components</p> |
| Lower KS2 | <p>Know how to confidently select materials, components, tools and equipment suitable to the task.</p> <p>Know how to follow procedures for safety and hygiene.</p> <p>Know how to use an extensive range of materials and components e.g. textiles, mechanical, construction kits, electrical and food ingredients.</p> <p>Know how to measure, mark out, cut and shape materials and components with accuracy.</p> <p>Know how to accurately assemble, join, and combine materials.</p> <p>Know how to accurately apply a range of finishing techniques, including those from art and design.</p> |

| | Evaluate |
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| EYFS | <p>Know how to talk about their design and what they are making</p> |
| Year 1 | <p>Know the function of a product, who they are for and how they are used</p> <p>Know how to evaluate their product by discussing how it functions in relation to the purpose (design criteria)</p> <p>Know how to evaluate existing products and explain what they like and dislike about products and why</p> |
| Year 2 | <p>Know how to evaluate their products as they are developed, identifying strengths and changes to their design</p> <p>Know how to evaluate their product in relation to the purpose (design criteria)</p> |
| Lower KS2 | <p>Know how to identify the strengths and areas for development in their ideas and products.</p> <p>Know how to refer to their design criteria as they design and make.</p> <p>Know how to use their design criteria to evaluate and improve their completed products.</p> <p>Know how to investigate and analyse how well products have been designed and made; why materials have been chosen; what methods of construction were used; how well the products worked; whether they achieved their purpose and the needs/wants of the users.</p> <p>Know how to investigate and analyse who designed the products; where products were designed and made; when products were designed and made; whether products can be recycled or reused.</p> <p>Know how to recognise several inventors, designers, chefs, manufacturers, and engineers, who have been influential in the design and technology industries.</p> |

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| EYFS | Explore, experiment, join, cut, stick, tools |
| Year 1 | Plan, Design, Explore, Evaluate, Investigate, Attach, Elements Equipment, Product, Purpose, technology, sliders, movement, model, healthy, taste test, ingredients |
| Year 2 | User, Purpose, Functionality, Innovation, Authenticity, Ingredients, Edible, Adapt, Evaluate, Rate, Product, Promote, Texture, Opinions, Samples, Criteria, Consistency, Axle, Vehicle, Chassis, Tyre tread, Dowel |

Impact

At Butler's Hill we implement a curriculum that is progressive in skills throughout the school. In Key Stage One, a unit of D&T or art will be taught alternately each half term, focusing on the knowledge and skills set out in the National Curriculum. The aim of our D&T lessons will be that children will be taught the required skills of design and making that they can use to progress in both their D&T lessons and their every day life. In early years children are provided with various opportunities to develop their fine motor skills to help them progress through school. Children are given the opportunities to evaluate and edit their work, teaching them that it takes time and change before a final product can be created. We believe the impact of the D&T curriculum is that children will build on this wealth of skills and understanding, now and in the future.



