



BEECHFIELD SCHOOL

PROGRESSION OF KNOWLEDGE AND SKILLS

DESIGN AND TECHNOLOGY



At Beechfield School, our Design and Technology curriculum allows children to use their problem solving, creativity and imaginative skills to design and make products. The children will also delve into the consideration of others' wants and needs as well as self-evaluating their own work.

EYFS

DT is taught through 'Expressive art and design' (EAD) which is a specific area. It includes art, drama, music and DT. There are two areas within EAD:

- Exploring and using media and materials
- Being Imaginative

Within 'exploring and using media and materials', the objectives for the end of Reception are:

- 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;**
- Make use of props and materials when role playing characters in narratives and stories.**

DT is part of the creative area in all EYFS classrooms and is part of continuous provision for children to access throughout the day. We assess each child in EAD every term using Birth to 5 Matters.

Key vocabulary

Design	Technical Knowledge and Making	Cooking and Nutrition	Evaluate
Plan Draw Ideas Design	Make Build Join Shape Fix	Healthy Unhealthy Fruit Vegetables Some names of commonfruits/vegetables	Change Like Dislike Next time Different



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Key Stage 1

National Curriculum: 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.

Year 1			
<p>How do you catch a star? What material will you use? Distance – how long does it need to be? What happens if the star falls?</p>	<p>Design:</p> <ul style="list-style-type: none"> - Draw on own experiences to generate ideas - Coming up with ideas and justifying them <p>Make:</p> <ul style="list-style-type: none"> - Use an appropriate technique to produce design - Making decisions about appropriate tools to use - Assemble, join and combine materials using a variety of methods - Understand and use basic food hygiene <p>Evaluate:</p> <ul style="list-style-type: none"> - Evaluate their final piece and by discussing what went well - Identifying strengths and developments for next time 		
<p>How can a house float on water? Test a range of materials to design a house that floats on water</p>	<p>Design</p> <ul style="list-style-type: none"> - Design own ideas by drawing upon own experiences to generate ideas - Using this, coming up with ideas and justifying them - Understanding the purpose and who would use their design <p>Make</p> <ul style="list-style-type: none"> - Making sure their design meets their criteria - Measure, mark and cut out shapes using a range of materials - Choose correct tools to make the product <p>Evaluate</p> <ul style="list-style-type: none"> - Testing their product and discussing what went well - Explaining what they have made and their design process 		
<p>Handa's Surprise</p>	<p>Design:</p> <ul style="list-style-type: none"> - Using technical knowledge to come up with ideas and justifying them - Use the basic principles of a healthy and varied diet to prepare dishes in the context of preparing fruit salads - Understanding recipes <p>Make:</p> <ul style="list-style-type: none"> - Follow a simple recipe - Work with to correctly use measuring spoons, zesters and juicers when preparing dishes. <p>Evaluate:</p> <ul style="list-style-type: none"> - Select from and use a range of tools and equipment to perform practical tasks. - To explore and evaluate a range of existing products 		
Key vocabulary			
Design	Technical Knowledge and Making	Cooking and Nutrition	Evaluate
Plan Prepare Design Materials Ideas Labels	Fast/faster Slow/slower Up/down Turn Wind up Draw Material names e.g. wood/metal/foam/paper	Clean Safe/unsafe Ingredients Utensils Recipe Sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth	Change Improve Prefer Progress Evaluate



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Year 2			
<p>Can you build a Tudor House? Design a Tudor house Test out houses Why did they burn?</p>	<p>Design:</p> <ul style="list-style-type: none"> - Use own and other people's experiences to generate ideas - Develop a design idea using observations, drawings and models - Design a product for a purpose and intention <p>Make:</p> <ul style="list-style-type: none"> - Assemble, join and combine materials - Choose specific tools and use them safely <p>Evaluate:</p> <ul style="list-style-type: none"> - Use design criteria to evaluate product - Identify strengths and suggest changes that they would make next time - Testing their product to check if it is fit for purpose 		
<p>Sewing Meerkat mail bag Show examples of bags – giving options Plan what your bag will look like. Test out the bags How could they be improved?</p>	<p>Design:</p> <ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria - Generate, develop, model and communicate their ideas through talking, drawing and templates <p>Make:</p> <ul style="list-style-type: none"> - Choose tools using vocabulary to name and describe them - Follow safety procedures - Use a template - Stitch two pieces of fabric together using a running stitch and add features using appropriate materials and joining techniques. <p>Evaluate:</p> <ul style="list-style-type: none"> - Discuss their ideas as they develop and say what their design has to do to achieve the design criteria. - Use design criteria to evaluate product 		
<p>Healthy eating - Supertato Making a salad. Look at different salads. What food groups do they include? Make a salad</p>	<p>Design:</p> <ul style="list-style-type: none"> - Using technical knowledge to come up with ideas and justifying them - Using prior knowledge of a healthy and varied diet to prepare dishes in the context - Understanding and adapting recipes based on technical knowledge - Design a purposeful and appealing product for a specific audience <p>Make:</p> <ul style="list-style-type: none"> - Follow their own recipe - Work with to correctly use kitchen utensils and understand the safety procedures <p>Evaluate:</p> <ul style="list-style-type: none"> - Select from and use a range of tools and equipment to perform practical tasks. - To explore and evaluate a range of existing products by comparing them 		
Key vocabulary			
Design	Technical Knowledge and Making	Cooking and Nutrition	Evaluate
Use Model Product Development Market Re- search Survey Template	Sketch Tools Fix Glue Attach Features Decorate	Balance Amount Weight Nutrients Vegetarian/vegan Dietary requirement Intolerance Safe/Unsafe Utensils Healthy/Unhealthy Recipe	Complete Final Improve Modify Original Finished product Adapt Evaluate



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Key stage 2

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Year 3			
<p>Jumanji problem – Design a cage to keep a creature in</p>	<p><u>Design:</u></p> <ul style="list-style-type: none"> - Use research to create ideas and refine them to develop design criteria - Use research to develop simple design criteria - Use research to help prioritise ideas to create detailed design criteria <p><u>Make:</u></p> <ul style="list-style-type: none"> - Build and join strong frame structures and stiffen materials - Build simple frame structures. <p><u>Evaluate:</u></p> <ul style="list-style-type: none"> - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work - Using their own design criteria to evaluate it 		
<p>How can you keep warm and dry? Design a cloak that will keep a person warm and dry during the Stone Age period</p>	<p><u>Design:</u></p> <ul style="list-style-type: none"> -To acquire a broad range of subject knowledge and draw upon disciplines such as mathematics -To investigate and evaluate a range of existing products <p><u>Make:</u></p> <ul style="list-style-type: none"> -To select from and use a range of tools and equipment to perform practical tasks accurately -To select from and use a wider range of materials and components according to their functional properties -To select materials and components, including textiles according to their functional properties and aesthetic qualities <p><u>Evaluate:</u></p> <ul style="list-style-type: none"> -Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 		
<p>Edible garden Vegetable crisps Link to Science – plants – grow from Autumn</p>	<p><u>Design:</u></p> <ul style="list-style-type: none"> - Understand and know where and how a variety of ingredients are grown - Understand and apply the principles of a healthy and varied diet <p><u>Make:</u></p> <ul style="list-style-type: none"> - Understand and apply the principles of a healthy and varied diet in order to prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques in - Measure ingredients to the nearest millilitre accurately and assemble or cook ingredients. - Select from and use a wider range of tools and equipment to perform practical tasks accurately - Be able to plant and care for a variety of ingredients so they yield produce. <p><u>Evaluate:</u></p> <ul style="list-style-type: none"> -Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 		
Key vocabulary			
Design	Technical Knowledge and Making	Cooking and Nutrition	Evaluate
Organise Initial ideas Criteria Diagrams Annotate	Assemble Function Structure Three-dimensional (3-D) Shape	Balanced diet Hygiene Diet Grams/kg/pounds Storage	Edit Adapt Outcome Develop Test



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Purpose Appealing	Length Width Adhesives Joining Decision	Presentation Taste Flavour Texture	Analyse Effective Fit for purpose
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Year 4

<p>How can you stop somebody stealing the Philosopher's stone? Design an alarm warning system – buzzers – link to Science</p>	<p>Design:</p> <ul style="list-style-type: none"> - Use research to create ideas and refine them to develop suitable design criteria. - Research different materials to use and test ideas before a final design. - I can design a detailed design criteria. <p>Make:</p> <ul style="list-style-type: none"> - Select from and use a wider range of tools, resources and equipment to perform practical tasks accurately and safely. - Develop design criteria to inform the design of innovative products considering the purpose and target group/individual. - I can make a well-detailed product. <p>Evaluate:</p> <ul style="list-style-type: none"> - Carefully select materials and finishing techniques to ensure a high quality finish. - Evaluate their product in detail against the design criteria. - Complete a detailed evaluation of my finished product.
<p>How can you catch a goblin? Design and create a goblin trap.</p>	<p>Design:</p> <ul style="list-style-type: none"> - Draw a design which uses annotations to add detail - Develop design criteria to inform the design of innovative products aimed at a particular audience <p>Make:</p> <ul style="list-style-type: none"> - Make a prototype and well finished poster which aims to have two lever/linkage mechanisms. - Understand and use mechanical systems in their products - Decide where products can be recycled/reused <p>Evaluate:</p> <ul style="list-style-type: none"> - Use design criteria to help guide the evaluation process - What impact products have beyond their intended purpose
<p>Baking bread Make an unleavened / leavened bread (yeast)</p>	<p>Design:</p> <ul style="list-style-type: none"> - Use their experiences of food ingredients and cooking methods to help generate ideas - Investigate and analyse a range of existing products - 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. - Explain why they have chosen certain foods and processes and link them to their design criteria. - Produce an order of work which includes an annotated diagram and chosen equipment appropriately <p>Make:</p> <ul style="list-style-type: none"> - Select from and use a wider range of equipment to perform practical tasks accurately - Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques <p>Evaluate:</p> <ul style="list-style-type: none"> - Evaluate their bread product against objective design criteria

Key vocabulary

Design	Technical Knowledge and Making	Cooking and Nutrition	Evaluate
Prototype	Series circuit	Disinfect	Evaluating
Brief	Fault	Bacteria	Design brief
Consumer	Connection	Cross contamination	Design criteria
Customer	Insulator/conductor	Unleavened / leavened	Innovative



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Target audience Application	Program Input/output Lever Linkage Pivot Rotary	Yeast Dough Flour – Wholemeal, plain etc Knead Fold Savoury/sweet	Purpose Function Alter
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Upper Key Stage 2

Year 5	
<p>How can you trap a minotaur? Design a maze with something that stops a bee-bot coming through Levers and pulleys (link to Science – Forces and Computing – create a game)</p>	<p><u>Design:</u> - To research ideas about different animals to inform design. - To use research and develop design criteria to inform design.</p> <p><u>Make:</u> -To be able to select materials according to their functional properties. -To build a framework, accurately using a wider range of tools and equipment. -To have a clear understanding and use a mechanical system. -Work mainly independently to make a mechanical device, selecting materials to make a framework, handle, cam mechanism and finishing the device.</p> <p><u>Evaluate:</u> -Use peer feedback and design criteria to help guide the evaluation process. -Continually evaluate their work as it develops and at the end against design criteria and the design brief.</p>
<p>Super seasonal cooking - Make a healthy Mayan meal Grow herbs – salsa</p>	<p><u>Design:</u> -Generate ideas for an adventure map and appropriate obstacles matching their overall theme -To explain the best joining methods based on their knowledge of the properties of materials. -To explore and research a range of suitable materials and resources.</p> <p><u>Make:</u> -To program it accurately to move along a given route. - To use appropriate materials based on research in the design phase. -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.</p> <p><u>Evaluate:</u> -To be able to evaluate adventure maps against design criteria independently; - Use Peer feedback and design criteria to guide the evaluation process of the made product.</p>
<p>Super seasonal cooking - Make a healthy Mayan meal Grow herbs – salsa</p>	<p><u>Design:</u> - To investigate and analyse a range of existing products that are currently available. - To research and look at existing free standing structures - Research into different diets around the world</p> <p><u>Make:</u> - To select from and use a wider range of tools and equipment to perform practical tasks (for example cutting, shaping, joining and finishing) -To develop a range of practical skills to create bends - To apply their understanding of how to strengthen, stiffen and reinforce structures that are more complex</p> <p><u>Evaluate:</u> - To evaluate their ideas against their own design criteria and consider the views of others to improve their work. To evaluate against the design criteria, using critical analysis and reasoning.</p>



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Key vocabulary			
Design	Technical Knowledge and Making	Cooking and Nutrition	Evaluate
Models Quality Functionality User Mock-up	Adhesive Lattice Mass-produce Hand-made Packaging Presentation Dimensions Durable	Seasonal Herbs Seasoning Spice Cultural diets Traditions	Innovative Outcome Develop Test Analyse Effective Fit for purpose Alternatives

Year 6	
<p>Up-cycling materials Make a case to protect a phone from day to day wear and tear</p>	<p><u>Design:</u> -To 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 -To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams -To generate, develop and communicate their ideas through discussion, prototypes and pattern pieces.</p> <p><u>Make:</u> -To select from and use a wider range of materials and components, including textiles, according to their functional properties and aesthetic qualities -selecting decorative techniques and fastenings for felt phone cases. -During the making process, children will create a step by step plan to communicate the making process.</p> <p><u>Evaluate:</u> -To evaluate their ideas and products against their own design criteria in the context of evaluating a felt phone case against a design criteria created. - To evaluate against the design criteria, using critical analysis and reasoning.</p>
<p>Make an afternoon tea for the local care home/Salvation Army Design a menu Vary options</p>	<p><u>Design:</u> -To research and understand seasonality and know where and how a variety of ingredients are grown. -Research where ingredients come from and how they are made.</p> <p><u>Make:</u> -Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. -Demonstrate a range of basic and advanced food skills and cooking techniques. -Work independently to follow a recipe.</p> <p><u>Evaluate:</u> -Use Peer feedback and design criteria to guide the evaluation process of the made product. -Evaluate my own work using a design criteria and self-assessment of my creation.</p>



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<p>Electronic warning system – Highwayman – how could he be alerted? Use a buzzer/light for Morse code</p>	<p><u>Design:</u></p> <ul style="list-style-type: none"> - To investigate and analyse a range of existing products in the context of looking at existing freestanding structures. -To investigate and analyse a range of existing products in the context of investigating commercially bought marble runs. - Explore existing freestanding structures and explain what gives them strength, reinforcement and stability. - Design a marble run which incorporates some varied bends. <p><u>Make:</u></p> <ul style="list-style-type: none"> -To select from and use a wider range of tools and equipment to perform practical tasks (for example cutting, shaping, joining and finishing), accurately -To select from and use a wider range of materials and components according to their functional properties and aesthetic qualities. - Pay close attention to aesthetics when creating joins. - Demonstrate a clear ability to be creative and imaginative with their ideas when designing and building a marble run. - Build a marble run which incorporates some varied bends. <p><u>Evaluate:</u></p> <ul style="list-style-type: none"> - To evaluate their ideas against their own design criteria and consider the views of others to improve their work - Consider the views of others to improve their work.
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Key vocabulary

Design	Technical Knowledge and Making	Cooking and Nutrition	Evaluate
Models Quality Functionality User Mock-up	Adhesive Lattice Mass-produce Hand-made Packaging Presentation Dimensions Durable	Seasonal Herbs Seasoning Spice Cultural diets Traditions	Innovative Outcome Develop Test Analyse Effective Fit for purpose Alternatives