

Design and Technology

Design and Technology at Beech Hill School is taught purposefully in all year groups to allow children to safely develop their skills, work independently or in teams and become creative problem-solvers & makers. Our DT curriculum gives children the opportunity to design and make 'something' for 'somebody' for 'some purpose'.

We teach design and technology during specific focus weeks twice a year linked to the national curriculum objectives and our progression of skills for individual year groups. These focus weeks are linked with the curriculum half term of that topic. When an objective or project lends itself well, we also use our Design and Technology skills in other subject lessons. DT work, from these weeks, is recorded in a class book that follows children throughout their time at Beech Hill detailing the different aspects of their DT projects and showing the progress of skills in different areas of DT.

Within our DT projects we set the scene with a design brief that is relevant and gives the children a purposeful context. Children are then given the opportunity to look at and evaluate existing products and designs, considering designs from the past, and deciding on how to improve them. Considering the design brief and aspects learnt from existing designs, children create their own initial designs, evaluate them and then pull ideas together for final designs. Within this, children may test different materials, create prototypes and use computer-aided software in their designs. Children are then taught a range of useful practical skills and apply these skills in making their final product as per their own designs. When the making of the product is completed children with evaluate against the design brief, and also share with peers and people linked with the brief. (see image on next page for how this process flows through)

We cover the Cooking and Nutrition part of the DT curriculum in our MasterChef days. Classes have a full day off timetable and complete three sessions – practically cooking & making a dish, whilst also honing their skills and evaluating the end product; plus also looking at Safety & Hygiene, healthy eating, being considerate consumers, building on their knowledge of where food comes from, or considering a cooking & nutrition link with their current curriculum topic.



The DT Project



Design

Including: design brief, evaluating existing products, initial designs, evaluating own designs & creating final design



Technical Knowledge & Making

Textiles



Structures



Mechanisms & Mechanical Structures



Electrical Systems



Evaluate

Including: evaluating own product against design brief, considering views of others and thinking how improvements could be made.

MasterChef Days

Practical Cooking skills and making a dish



Cooking & Nutrition



Evaluate

Evaluating own final product /dish
Considering views of others and thinking how improvements could be made. (Verbal/Seesaw focus)

Plus 1 of the following sessions:

- Food Safety & Hygiene
- Healthy Eating
- Where food comes from
- Seasonal foods


Progression of Skills in DT (Design Technology)

EYFS Design Technology Skills

<p>Developing, planning and communicating ideas</p> <ul style="list-style-type: none"> • Explain what they are making and which materials they are using. • Select materials from a limited range that will meet a simple design criteria e.g. shiny • Select and name the tools needed to work the materials e.g. scissors for paper • Explore ideas by rearranging materials. • Describe simple models or drawings of ideas and intentions. • Discuss their work as it progresses 	<p>Working with tools and Equipment, materials and components</p> <ul style="list-style-type: none"> • Construct with a purpose in mind, using a variety of resources • Create using basic techniques • Use technical vocabulary when appropriate • Begin to use scissors to cut straight and curved edges and hole pinches to punch holes • Use adhesives to join material 	<p>Evaluating processes and products</p> <ul style="list-style-type: none"> • Say what they like and do not like about items they have made and attempt to say why • Begin to talk about their designs as they develop and identify good and bad points • Start to talk about changes made during the making process • Discuss how closely their finished products meet their design criteria 	<p>Structures</p> <ul style="list-style-type: none"> • Start to build structures, joining components together 	<p>Mechanisms and Mechanical Structures</p> <ul style="list-style-type: none"> • Use simple tools and techniques competently and appropriately • Select appropriate resources and adapt work where necessary • Select tools and techniques needed to shape, assemble and join materials they are using • Look at simple pulleys, hinges, wheels and axles
		<p>Textiles</p> <ul style="list-style-type: none"> • Experiment to create different textures. • Use different media can be combined to create new effects 		<p>Cooking and Nutrition</p> <ul style="list-style-type: none"> • Begin to develop a food vocabulary using taste, smell, texture and feel. • Explore familiar food products e.g. fruit and vegetables • Stir, spread, knead and shape a range of food and ingredients. • Begin to work safely and hygienically • Start to think about the need for a variety of foods in a diet. • Measure and weigh food items, non-statutory measures e.g. spoons, cups
<p>By the end of reception pupils will be able to;</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 				

Key Vocabulary;


Build, make, design, construct, shape, mould, join, attach, tools, cut, stick, glue, push, pull, cook, bake, knead, mix, stir, pour, spread, fill, measure

Aspect	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Design</p> <p>For Computer Aided Designs – look at using Purple Mash (seeing Computing skills progression) ---</p> <p>Take design inspiration from history</p>  	<p>Model using software to create simple designs (Purple Mash)</p> <p>With support design products that have a clear purpose and an intended user.</p> <p>---</p> <p>Start to look at existing historical products and as a group say what they like and don't like about them.</p>	<p>Use software to create designs (Purple Mash)</p> <p>Design products that have a clear purpose and an intended user.</p> <p>---</p> <p>Look at existing objects and designs from the past to identify likes and dislikes of the designs.</p> <p>Look at how products have been created</p>	<p>Begin to use software to design products</p> <p>Design with purpose by identifying opportunities to design with support</p> <p>Start to refine work and techniques as work progresses, by referring back to design brief and own designs.</p> <p>---</p> <p>Disassemble products to understand how they work</p> <p>Begin to look at some of the great designers in specific area of the DT project</p>	<p>Use software to design and represent products</p> <p>Design with purpose by identifying opportunities to design</p> <p>Refine work and techniques as work progresses, continually evaluating the product design</p> <p>--</p> <p>Look at some designers in specific area of the DT project, and generate ideas for designs from what they have seen.</p>	<p>Design with the user in mind, motivated by the service & purpose a product will offer</p> <p>Make continual refinements to products</p> <p>Begin to consider end result of the product, using art skills where possible.</p> <p>Where appropriate, use computer aided designs to represent own designs.</p> <p>---</p> <p>Look at a range of the great designers in specific area of the DT project.</p> <p>Generate ideas for designs from what they have seen, and begin to give reasons for their choices.</p>	<p>Design with the user in mind, motivated by the service a product will offer.</p> <p>Make products through stages of prototypes, making continual refinements.</p> <p>Ensure products have a high quality finish, using art skills where appropriate.</p> <p>Where appropriate, use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</p> <p>---</p> <p>Combine elements of design from a range of inspirational designers throughout history.</p>

<p>Make</p> <p>Materials (apply throughout all specific DT techniques and processes)</p> 	<p>Cut materials safely using provided tools (scissors)</p> <p>Demonstrate a range of joining techniques (such as gluing, hinges or combining to strengthen).</p>	<p>Measure and mark out to the nearest centimetre.</p> <p>Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</p>	<p>Being to cut materials by selecting appropriate tools with support.</p> <p>Being to measure and mark out to the nearest millimetre.</p> <p>Select appropriate joining techniques.</p>	<p>Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</p> <p>Cut materials accurately and safely by selecting appropriate tools.</p> <p>Measure and mark out to the nearest millimetre.</p>	<p>Choose appropriate materials for constructing and creating products.</p> <p>Understand the properties and reasons behind using different materials.</p>	<p>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).</p> <p>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).</p>
<p>Technical Knowledge & Make</p> <p>Structures</p> 		<p>Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</p>	<p>Choose suitable techniques to construct products or to repair items.</p> <p>Strengthen materials using suitable techniques.</p>			<p>Develop a range of practical skills to create products (such as cutting, nailing, gluing, and sanding).</p> <p>Choose appropriate materials to strengthen and structure.</p> <p>Understanding that different construction shapes are stronger and better suited to different tasks.</p>

<p>Technical Knowledge & Make</p> <p>Mechanisms and Mechanical Systems</p> 	<p>Create products using sliders and levers (split pins) mechanisms</p>	<p>Create products using wheels and axel mechanisms.</p>		<p>Explore & use mechanical systems (different levers and linkages) to create a moving product.</p> <p>Consider the different placement of the linkages & levers for success of the product.</p>		<p>Use innovative combinations of electronics (or computing) and mechanics in product designs.</p> <p>Begin to use combinations of electronics (or computing) and mechanics in product designs.</p> <p>Explore & use mechanical systems (gears, pulleys and cams)</p>
<p>Technical Knowledge & Make</p> <p>Textiles</p> 	<p>Use an existing template to cut & shape fabric with support.</p> <p>Stitches – running stitch</p> <p>Colour & decorate textiles with number of techniques (eg. Apply buttons or sequins, glued or simply stitched applique, fabric printing)</p>		<p>Design a basic template, use pins to secure it.</p> <p>More than 1 type of hand stitching – <u>running stitch</u>, cross stitch, back stitch</p> <p>Join textiles with appropriate stitching and understand need for seam allowance</p> <p>Select appropriate techniques & items for decorating textiles (buttons, threads, ribbons etc)</p>		<p>Design & make appropriate templates, understand basic tessellation so maximise use of fabric.</p> <p>Multiple types of hand stitching – eg. running stitch (optional with ‘snail trail’), cross stitch, back stitch, chain stitch, stem stitch, satin stitch</p> <p>Join textiles with combination of stitching techniques and create product that use a seam allowance</p> <p>Use quality materials to create suitable visual & tactile effects in decoration of textiles (eg. soft decoration for comfort on cushion)</p>	

<p>Technical Knowledge & Make</p> <p>Electrical systems</p> <p>(Computing)</p> 	n/a	n/a		<p>(DT project with Crumble kits)</p> <p>Create series circuits using electronics kits (with 2 sparkles - bulbs)</p> <p>Begin to write code to control and monitor models or product</p>	<p>Create more complex circuits using electronics kits (with bulbs, switches and motors)</p> <p>Write code to control and monitor models or products</p>	<p>Other DT opportunities: Year 6 Coding Crumble unit as part of Computing lessons.</p> <p>See Computing skills & LTP for detail</p>
<p>Evaluate</p> <p>Evaluation of existing products</p> 	<p>Express likes and dislikes about existing products/designs.</p>	<p>Express likes and dislikes about existing products/designs.</p> <p>Being to suggest improvements to existing products/designs.</p>	<p>Being to express opinions about existing products/designs in relation to key features of the design brief the project is working to (may include about: appearance, materials etc)</p> <p>Compare and contrast a range of existing products that link with project at hand.</p>	<p>Express opinions about existing products/designs in relation to key features of the design brief the project is working to (may include about: appearance, materials etc)</p> <p>Compare and contrast a range of existing products that link with project at hand. Explain reasons behind comparisons.</p> <p>Begin to give reasons for how to improve existing designs/products in their own designs.</p>	<p>Being to consider existing products and how they might improve upon them in own designs.</p> <p>Express opinions about existing products/designs in relation to key features of the design brief the project is working to (may include about: appearance, materials, user experience etc)</p> <p>Discuss how they would improve these aspects</p>	<p>Consider existing products and how to improve upon them in own designs.</p> <p>Evaluate the design of products so as to suggest improvements to the user experience.</p>

<p>Evaluate</p> <p>Evaluation of own designs and products</p> 	<p>Say what they liked or disliked about own designs/products.</p>	<p>Express likes/dislikes about own designs/products.</p> <p>Begin to say what they would do differently if they were to make it again.</p>	<p>Express and explain likes/dislikes about own designs/products.</p> <p>Begin to link evaluations back to design brief.</p> <p>Suggest ways to improve.</p>	<p>Explain opinions about own designs/products (including about appearance, materials & construction, functionality, purpose, etc)</p> <p>Link evaluative comments back to the design brief.</p> <p>Suggest ways to improve and reasons behind them.</p>	<p>Make detailed evaluations and comments about their own and their peers' designs/products linked with a range of appropriate criteria linked with the project.</p> <p>Make suggestions for how to improve and why, giving reasons linked to specific designs/products.</p>	<p>Make purposeful and detailed evaluations and comments about their own and their peers' designs/products linked with a range of appropriate criteria linked with the project.</p> <p>Make suggestions for how to improve and why, giving reasons linked to specific designs/products. Create simple prototype with new improvements to see if suggestions might work.</p>
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Progression of Skills in DT (Design Technology) – Cooking and Nutrition

The Cooking LTP and the BH Recipe Book follows these skills and will ensure coverage of cookery skills. See also the pictorial Must Knows for each year group.



	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food skills – Knife Skills / Cut	Cut - soft foods with butter knife – eg. banana, canned peach slices - begin to introduce bridge hold for soft foods	Cut - low resistance foods with table knife into pieces/ slices – eg. canned pineapple slices, sticks of peppers, mushrooms - introduce bridge hold with low resistance foods	Cut - low resistance foods with table knife into equal size pieces/ slices – eg. canned pineapple slices, sticks of peppers, mushrooms - use fork to secure foods - bridge hold with low resistance	Cut - medium resistance foods with vegetable knife – eg. mushrooms, courgettes - introduce the claw grip to secure foods - partly prepared foods using a bridge hold – eg. cut half a tomato into a quarter - slicing into equal pieces (different to cutting) - quartering	Cut - medium resistance foods with vegetable knife – eg. mushrooms, courgettes - use a fork or the claw grip to secure foods (choice depending on item) - medium resistance or partly prepared foods using a bridge hold – eg. cut half a tomato into a quarter, half canned potatoes, halve large grapes	Cut - increase confidence in cutting skills - higher resistance foods with vegetable knife – using the claw grip – eg. carrots with supervision - higher resistance foods from whole using the bridge hold with supervision - coring – eg. an apple using a corer	Cut - increasingly skilled at variety of cutting - higher resistance foods with vegetable knife – using the claw grip – eg. carrots - higher resistance foods from whole using the bridge hold – eg. halve an apple/ raw potato - trim variety of foods - name different parts of a knife
Bake (bread, scones, cakes etc)	- Adult led – putting item into oven to bake	- Adult led – putting item into oven to bake	- Adult led – putting item into oven to bake. Children to support with	- Adult led – putting item into oven to bake. Children set temperature & in charge of timings.	- Adult led – putting item into oven to bake. Children set temperature & in charge of timings.	- Adult led – putting item into oven to bake. Children understand HOW to do it safely	- Adult led – putting item into oven to bake. Children understand HOW to do it safely

			temperature setting & timings.		<ul style="list-style-type: none"> - Need for cooling item after oven. - Begin to test for readiness 	<ul style="list-style-type: none"> - Testing for readiness (using a point). - Rising 	<ul style="list-style-type: none"> - Begin to consider different rising agents in cooking.
Cooking on hot plate	Adult led if needed	Adult led if needed	Adult led if needed	Adult model – boil	Adult model – simmer, fry	1:1 with adult – boil, simmer, melt, fry	1:1 with supervision – melt, boil With adult - fry
Measure	<ul style="list-style-type: none"> - using spoons (range of sizes – cereal/pudding spoon, teaspoon etc) to measure out spoonful - count ingredients 	<ul style="list-style-type: none"> - using different size measuring spoons - adult led with measuring on digital weighing scales 	<ul style="list-style-type: none"> - using different size measuring spoons and cups - refer to ingredients in simple fractions – eg. half, quarter - adult support with measuring on digital scales 	<ul style="list-style-type: none"> - use measuring spoons/cups – begin to understand difference between rounded or level - using measuring jug with support (getting at eye level when measuring liquids) - using digital scales independently - adult support with analogue scales for whole amounts on scales 	<ul style="list-style-type: none"> - use measuring spoons/cups – difference between rounded or level - using measuring jug with reducing support to obtain accuracy (getting at eye level when measuring liquids) - using digital scales to obtain accuracy - reducing adult support with analogue scales for whole & inbetween amounts on scales 	<ul style="list-style-type: none"> - using measuring jug & spoons/cups independently and accurately. Adult guidance as needed - use digital and analogue scales accurately and independently. Adult guidance as needed 	<ul style="list-style-type: none"> - using measuring jug & spoons/cups independently and accurately - use digital and analogue scales accurately and independently
Recipe Instructions	Follow	Follow <ul style="list-style-type: none"> - simple recipe led by an adult. 	Follow <ul style="list-style-type: none"> - simple recipe with support by an adult 	Follow	Follow	Follow <ul style="list-style-type: none"> - a simple recipe independently 	Follow



	<p>- instructions given one at a time by an adult</p> <p>Carry out</p> <p>- instructions with support</p>	<p>Carryout</p> <p>- instructions with little support. Voice recorded instructions onto seesaw?</p>	<p>Carryout</p> <p>- instructions with little support. Matched with reading ability.</p>	<p>- simple recipe with some guidance from an adult</p> <p>Carryout</p> <p>- simple instructions independently</p> <p>- more complex instructions with some support</p>	<p>- simple recipe with little guidance from an adult</p> <p>Carryout</p> <p>- simple instructions independently</p> <p>- more complex instructions with little support</p>	<p>Carryout</p> <p>- begin to scale recipes up/down (by multiplying or dividing amounts)</p>	<p>- simple & more complex recipes independently</p> <p>Carryout</p> <p>- modifications to recipes</p> <p>- scaling recipes up/down (by multiplying or dividing amounts)</p>
<p>Health & Safety</p> <p>Clearing up after cooking</p>	<p>Wash hands before cooking/ between if needed.</p> <p>Put dirty/used equipment into washing up bowl.</p>	<p>Put rubbish into bins</p> <p>Help to dry up light-weight items when tidying up after cooking</p>	<p>Scrape / put rubbish into bins</p> <p>Help to dry up when tidying up after cooking.</p> <p>Wipe down surfaces</p>	<p>Washing up with support</p> <p>Tidy away leftover ingredients</p>	<p>Washing up after themselves</p> <p>Secure left over ingredients in hygienic ways eg. air tight containers, seal packages.</p>	<p>All tidying up & clean down after cooking (with support)</p>	<p>All tidying up & clean down after cooking</p>
<p>Cooking Evaluation Skills:</p> <p>(Type/voice record onto Seesaw)</p>	<p>Recall what they have done in simple phrases.</p> <p>Give thumbs up or down rating for food tried.</p>	<p>Recall what they have done in simple sentences.</p> <p>Express likes/dislikes of food tastes, smells and textures.</p>	<p>Explain what they have done in simple sentences, in chronological order</p> <p>Express likes/dislikes of food – including appearance.</p>	<p>Give rating /5 on range of different features eg. taste, appearance, theme link.</p> <p>Identify successes.</p> <p>Begin to make suggestions for future.</p>	<p>Give rating /5 on range of different features chosen by themselves.</p> <p>Identify positives and changes for the future of recipe and product.</p>	<p>Discuss any problems that occurred from following the recipe and any changes that may make if did again.</p> <p>Rate final product and own technical skills.</p>	<p>Use star diagram rating system and explain reasons for choices</p>

Clarification of some of the vocabulary used

- Adult led = adult does and child observes
- Adult support = adult does with child
- Adult supervision = close and continuous observation by adult whilst child does