

Being a Designer at Tanners Brook Primary School

EYFS – The foundations of becoming a Designer

The foundations of Design Technology (DT) learning and understanding starts in the Early Years under the area of learning Expressive Arts and Design, most suitably through the Early Learning Goal (ELG) of Creating with Materials. Reaching this goal can be demonstrated in many learning opportunities but it is likely to see:

- Children taking part in cooking and baking activities
- Children talking about their creations, explaining the choices they have made, using range DT language such as; joining, building, heavier, lighter, etc
- Disassembling of everyday objects to learn how they work and how they are put together
- Exploration of different materials, textures and fabrics
- Construction with a range of loose parts, crates, planks, cardboard, etc
- The creation of temporary and more permanent models, both individually and collaboratively
- Using a range of tools such as scissors and paint brushes to develop fine motor skills (Physical Development – Fine Motor Skills ELG)

These foundations will support our children when they start to learn the National Curriculum for DT in KS1.

KS1 National Curriculum: Being a Designer

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]. When designing and making, pupils should be taught to:

Design

- Design purposeful, functional, appealing products for themselves and other users 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

- 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

- Explore and evaluate a range of existing products
- Evaluate their ideas and products against design criteria

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.

Cooking and Nutrition

Pupils should be taught to:

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

KS2 National Curriculum: Being a Designer

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, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:

Design

- 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

Make

- 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

- 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

Technical knowledge

- 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.

Cooking and Nutrition – Pupils should be taught to:

- 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

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Early Years	Area of Learning – Expressive Arts and Design Development Matters Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park. Explore different materials freely, to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures.		Area of Learning – Expressive Arts and Design Development Matters Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.		Area of Learning – Expressive Arts and Design Early Learning Goal: Creating with Materials 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. Early Learning Goal: Fine Motor Skills (Physical Development) - Use a range of small tools, including scissors, paint brushes to develop fine motor skills.	
Year One Curriculum Content Criteria	A Year One Designer: 1. I use my own ideas to make something. 2. I describe how something works. 3. I cut food safely. 4. I describe the ingredients I am using. 5. I make my model stronger. 6. I explain to someone else how I want to make my product. 7. I choose appropriate resources and tools. 8. I make a simple plan before making.					
Year One Units of Study	Salad (Face shaped) Knowledge and context: Understand that salad is healthy. Understand where the vegetables in a salad come from. To understand what a good quality salad would look like and how to make it. Skills: Develop organistaional skills by exploring, talking about and tasting salads. (2) To design a healthy salad in the shape of a face and explain to a friend what the ingredients are and how you will make it. (4, 6, 8) To explore different tools and equipment to perform			Sewing (Binca Bookmarks) Knowledge and context: To explore and evaluate a range of different types of bookmarks. To understand what sewing is. To learn how to sew a running stitch. To understand how to neatly decorate something with a running stitch. Skills: To develop observational skills- exploring and talking about different stitches and different bookmarks. Develop sewing skills by practicing threading initially and then		Structures (tents) Knowledge and context: To know different materials have different properties that make them more suitable for some tasks than others. Understand how different paper techniques can be used for different parts of the tents. (2) Understand the properties of different joining materials. Skills: Develop skills to roll, fold and pleat paper Design a suitable, functional tent that uses the skills of rolling, folding and pleating paper/card. (5)

	<p>the practical task of cutting accurately and safely. (3, 7) Follow the plan to make a healthy salad. (1, 3) To explore and evaluate finished products.</p> <p>Enhancements: Taste a range of salads</p>			<p>progressing to running stitch on binca. Learn how to safely sew decoration onto the finished bookmark. Design how they will sew on the bookmark- Running stitch in lines to form a pattern. Initials can be added where more of a challenge is required.</p> <p>Enhancements: Look at threading to understand the basics of a running stitch. Look at items that have been decorated with stitches. Look at existing bookmarks.</p>		<p>Use knowledge of materials to ensure the design uses appropriate materials (8, 7) Explain why these materials have been chosen and how you will make your tent to a friend. (6) Follow designs and choose accurate equipment to perform practical tasks (folding and joining). (1, 7) Create a high quality finished product that follows the plan. (1) Effectively evaluate ideas.</p> <p>Enhancements:</p>
<p>Year Two Curriculum Content Criteria</p>	<p><u>A Year Two Designer:</u></p> <ol style="list-style-type: none"> 1. I think of an idea and plan what to do next. 2. I choose tools and materials and explain why I have chosen them. 3. I join materials and components in different ways. 4. I explain what went well with my work. 5. I explain why I have chosen specific textiles. 6. I measure materials to use in a model or structure. 7. I make a product which moves. 					
<p>Year Two Units of Study</p>		<p>Moving Vehicles</p> <p>Knowledge and context: To know what an axle is and how it works. Be able to label the key parts of a moving vehicle (Wheels, Axle, Body, Cab, Chassis (frame)).</p> <p>Skills: Be able to investigate existing moving vehicles/ toy vehicles.</p>	<p>Sewing- Puppets</p> <p>Knowledge and context: To explore and evaluate a range of different types of puppets. To explore a range of joining techniques (sewing, gluing, etc) and think about when it may be appropriate to use them.</p> <p>Skills:</p>		<p>Winding Mechanisms</p> <p>Knowledge and context: To know what a winding mechanism is and how it works. Understand the functions of the parts of a winding mechanism.</p> <p>Skills:</p>	

		<p>Explore different ways of making axles. To explore and use mechanisms (wheels, axles) in their products. Be able to design a moving vehicle which will hold Father Christmas' presents. (1) Select and use suitable tools to make the vehicle. (2) Use the skills of cutting, joining and finishing. (3) Create a high quality finished product that follows the plan and can fulfil its function of enabling Father Christmas to deliver presents. (7) Effectively evaluate ideas. (4)</p> <p>Enhancements: Investigate toy vehicles and real moving vehicles</p>	<p>To develop observational skills- exploring and talking about puppets. Develop sewing skills by threading a needle, tying a knot and using a running stitch to join. To explore different tools and equipment to perform the practical task of cutting fabric accurately, applying decoration and safely sewing the finished pieces together. (3) Design a high-quality hand puppet with designs that explain which textiles will be used and why and the different ways parts will be joined, and details will be applied (sew, glue, etc). (1, 5) Make a high-quality hand puppet following designs and using a variety of joining techniques practiced. (3) Evaluate finished products. (4)</p> <p>Enhancements: Investigate a variety of puppets Watch clips of puppet shows</p>		<p>Be able to constructively investigate and analyse existing winding mechanisms to understand what a wind up toy is and how winding mechanisms work. Develop skills to design a suitable, functional winding mechanism that uses appropriate materials for the task. On designs explain why they have chosen those materials. (1) Follow designs and choose suitable equipment to accurately and safely perform practical tasks (measuring, sawing and gluing). (2) Learn how to safely use tools to cut the dowelling. Learn how to accurately use tools to measure the dowelling. (6) Create a high quality finished product that follows the plan. (7) Effectively evaluate ideas (4)</p> <p>Enhancements:</p>	
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<p>Year Three Curriculum Content Criteria</p>	<p>A Year Three Designer:</p> <ol style="list-style-type: none"> 1. I know how to be both hygienic and safe when using food. 2. I follow a step-by-step plan, choosing the right equipment and materials. 3. I design a product and make sure that it looks attractive. 4. I present a product in an interesting way 5. I select the most appropriate tools and techniques for a given task.
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	6. I make a product which uses both electrical and mechanical components. 7. I work accurately to measure, make cuts and make holes. 8. I describe how food ingredients come together.					
Year Three Units of Study		<p style="text-align: center;">Pneumatic Moving Monsters</p> <p>Knowledge and context: To know that air can produce movement, and this can be used in pneumatic mechanisms. Be able to label the key parts of pneumatic mechanisms.</p> <p>Skills: Constructively investigate and analyse existing pneumatic toys and pneumatic mechanisms draw and label accurate diagrams to explain how they work. Design a pneumatic toy, on the designs explain which part will move, what will make it move and the equipment required. (3) Make a prototype of the design, evaluating how well the pneumatic mechanism works and whether the materials and equipment selected were suitable. (2) Redesign the toy to make the mechanism work more effectively, explaining the changes made and why. Select appropriate tools and use suitable techniques to create a</p>		<p style="text-align: center;">Pizza Making</p> <p>Knowledge and context: To understand seasonality and know where and how a variety of ingredients are grown, reared, caught, and processed. To understand and apply the principles of a healthy and varied diet. To understand what an innovative, functional, appealing pizza requires</p> <p>Skills: Investigate and analyse a range of pizzas thinking about how different ingredients are used for different pizzas. (8) Explore different tools and equipment required to make pizza and know how to safely use knives to chop the produce. (5, 1) Design and label a pizza, thinking about appropriate suitable ingredients, who the audience is and how you will make it attractive to them. (3) Consider your audience and plan how to present your pizza in an interesting and suitable way. (4) Make high quality pizzas ensuring that you are always safe and hygienic,</p>		<p style="text-align: center;">Picture Frames</p> <p>Knowledge and context: To know that different materials have different properties that make them more suitable for tasks than others. Understand how techniques can be used to make strong and stable structures. Understand the properties of different joining materials. The frames audience and purpose will impact the design.</p> <p>Skills: Be able to constructively investigate and analyse existing photo frames. Produce neat, detailed, annotated drawings of existing photo frames. Design a suitable, functional photo frame, (3) plan suitable equipment to perform practical tasks (measuring, cutting and joining). (5) Measure wood accurately. (7) Set up a work station independently, enabling wood to be sawn safely and accurately. (7) Create a high quality finished product that follows the design. (2) Effectively evaluate ideas.</p> <p>Enhancements:</p>

		<p>high quality pneumatic toy that follows the plan, fulfils the design brief and can make the desired motion using the pneumatic mechanism (5, 2, 7) Effectively evaluate ideas</p> <p>Enhancements: Look at existing pneumatic toys.</p>		<p>and designs are followed. (1,2) Evaluate ideas and products against their own design criteria.</p> <p>Enhancements: Look at, and taste, existing pizzas.</p>		
Year Four Curriculum Content Criteria	<p>A Year Four Designer:</p> <ol style="list-style-type: none"> 1. I use ideas from other people when I am designing. 2. I produce a plan and explain it. 3. I evaluate and suggest improvements for my designs. 4. I evaluate products for both their purpose and appearance. 5. I explain how I have improved my original design. 6. I choose a material for both its suitability and its appearance. 7. I measure accurately. 8. I persevere and adapt my work when my original ideas do not work. 9. I prove that my design meets some set criteria. 					
Year Four Units of Study	<p>Sewing- Purses</p> <p>Knowledge and context: To know what designers do and use their work to inspire my designs. (1) To know why we use purses/ wallets and what a purse/ wallet needs to serve its purpose. To know that some joining techniques are more suitable for certain tasks than others. To know how to produce different stitches.</p> <p>Skills: Be able to constructively investigate and analyse existing purses/ wallets,</p>		<p>Torches</p> <p>Knowledge and context: To know who Thomas Edison is and that his work contributed towards the development of the lightbulb. To understand that he didn't do this alone and many inventors contribute to a successful product. To understand that inventors contribute to improving quality of life in society. To know what a torch is, how it works and the function of its parts.</p> <p>Skills:</p>		<p>Pop up books</p> <p>Knowledge and context: To know a variety of fairy tales/ traditional tales that could be the inspiration for the pop-up books. (PL- Year 1- traditional tales) To know that different materials have different properties that make them more suitable for some tasks than others. Be able to explain how different pop-up mechanisms work.</p> <p>Skills:</p>	

<p>using this information to inspire my designs. (1) Master the art of sewing by threading a needle, tying a knot and making different stitches (running, back or cross stitch) to join and add detail and learn how to sew on a button. Follow the set design criteria to produce functional, imaginative purse designs which choose materials that are both suitable and attractive. (2, 6, 9) Evaluate and suggest improvements for the designs, choosing one final design and explaining how it is an improvement on the original design. (3, 5, 8) Follow the amended design and choose accurate equipment to perform practical tasks (e.g. accurate measuring, careful cutting, joining and finishing). Persevering and adapting the design as required. (7, 8) Learn how strengthen, stiffen and reinforce the purse. Effectively evaluate finished product. Focusing on whether it is purposeful, suitable for its intended audience and the appearance. (4)</p> <p>Enhancements:</p>			<p>Be able to constructively investigate and analyse existing torches. Design a functional, portable torch using suitable equipment. Evaluate the design making appropriate improvements and amendments as required. (3, 8) Know how to use construction materials to strength and fix. Follow designs and choose accurate equipment to perform practical tasks safely with suitable tools in order to make a high quality finished product. Evaluate the finished product ensuring it is purposeful, has an attractive appearance and the design is an improvement on the original design (4, 8) Enhancements: Look at existing torches Explore circuits</p>		<p>Be able to constructively investigate and analyse existing pop up books. Be able to sketch and label the moving mechanisms- Explore different mechanisms (simple pop-up mechanism using a symmetrical shape, a slide /lever mechanism, an open-ended cuboid mechanism) Design two pop up pages- review designs looking at whether the mechanisms that have been chosen are the most appropriate for that page. (3) Make prototypes of them, evaluate the designs and make amendments as required. (8) Develop skills of cutting, joining and finishing to create a high quality 3D book that follows the plan, has careful colouring and neat handwriting. Evaluate the finished product ensuring it is purposeful, has an attractive appearance and the design has been adapted as required (4,5).</p> <p>Enhancements:</p>	
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	Look at existing purses and wallets. If possible, arrange visit from a designer.					
Year Five Curriculum Content Criteria	<p>A Year Five Designer:</p> <ol style="list-style-type: none"> 1. I come up with a range of ideas after collecting information from different sources. 2. I produce a detailed, step-by-step plan. 3. I suggest alternative plans; outlining the positive features and draw backs. 4. I evaluate appearance and function against original criteria. 5. I use a range of tools and equipment competently. 6. I work within a budget. 7. I show that I can be both hygienic and safe in the kitchen 8. I know how to be both hygienic and safe when using food. 9. I show that I consider culture and society in my plans and designs. 10. I explain how products should be stored and give reasons. 					
Year Five Units of Study	<p>Cooking and nutrition (biscuits)</p> <p>Knowledge and context: To describe features of biscuits thinking about taste, texture, and appearance. To be able to follow a recipe. To understand how recipes can be adapted by using additional ingredients to make them more suitable for the target audience. To understand how market research can be used to produce an innovative, functional, appealing biscuit. To understand how to stick to a budget when making their product to make a profit. (6)</p> <p>Skills: Taste and analyse existing biscuits and their packaging , using this information to inspire designs.</p>		<p>Land Yachts</p> <p>Knowledge and context: To know what a land yacht is and what it is used for.</p> <p>Skills: Investigate and analyse a range of land yachts to provide understanding of what a good quality land yacht requires. To explore different tools and equipment required to make a moving vehicle. To use research to design an innovative, functional and appealing land yacht. (1) To make a high-quality land yacht that follows designs. (5) Evaluate appearance and function against their own design criteria (4)</p> <p>Enhancements:</p>		<p>Computing- Micro:Bit-Octobot</p> <p>Knowledge and context: Use micro-bit to make a paper octopus that retracts its tentacles.</p> <p>Skills: Investigate and explore how to use micro:bit. Accurately use the template to draw and cut the octopus. Use folding skills to accurately make the tentacles. Use sewing skills to accurately sew a running stitch on the tentacles. Carefully attach all tentacles to the body using a suitable joining method (e.g. glue)</p> <p>Enhancements:</p>	

	<p>Follow a basic biscuit recipe and evaluate it's appearance and taste, thinking about potential adaptations that would improve the recipe. (3)</p> <p>Conduct market research across the school about how much they would spend on biscuits and ingredients they would like. (9)</p> <p>Consider the results of the market research to produce a range of biscuit designs that consider the results of the market research and work within a budget. (1, 6)</p> <p>Design and make packaging for the biscuits that is attractive, appealing and explains how to store the biscuits. (10)</p> <p>Produce a detailed, step-by-step recipe for how their biscuits will be made. (2)</p> <p>Follow the recipe, keep to budget and work hygienically and safely to make high quality biscuits. (5, 7, 8)</p> <p>Successfully sell the biscuits and make a profit.</p> <p>Evaluate the biscuits, their packaging and whether you successfully made a profit.</p> <p>Enhancements:</p>					
<p>Year Six Curriculum Content Criteria</p>	<p>A Year Six Designer:</p> <ol style="list-style-type: none"> 1. I use market research to inform my plans and ideas. 2. I follow and refine my plans. 3. I justify my plans in a convincing way. 4. I explain how a product will appeal to a specific audience. 5. I show that I can test and evaluate my products. 					

	6. I evaluate my product against clear criteria. 7. I make a prototype before making a final version.					
Year Six Units of Study		<p style="text-align: center;">Structures</p> <p>Knowledge and context: Use and apply previous knowledge of making paper structures and ways to strengthen and stiffen those structures.</p> <p>Skills: Explore existing structures and use that knowledge to work in teams and create structures. (1) Analyse and evaluate existing structures. Apply these findings, and knowledge of shapes that can strengthen structures to their designs, justifying why they have made the structure in that way. (1,2, 3) Be able to roll paper tightly, using equipment provided, to form parts of the structures. Work cooperatively as a team to produce structures. apply understanding of how to strengthen, stiffen and reinforce more complex structures. Make strong, free standing structures as part of a team evaluate ideas and products against their</p>				<p style="text-align: center;">Sewing EY Mascot</p> <p>Knowledge and context: Explore a variety of different cuddly toys and mascots, look at features they have in common and any differences. (1) Explore materials used (washable? Texture? Colour?), how extra details are added (glue sewing etc), size of toys, fillings used and target audience of the toys. Explore the role of a designer, focusing on the fact that designers think about what their audience want not what they would like.</p> <p>Skills: Practise sewing techniques- recap stitches previously learnt (e.g. overstitch, running stitch, cross stitch and back stitch), threading a needle, tying knots and finishing off. Turn EY drawings into a design and use this to create templates and prototypes. (2, 5, 7) Evaluate the prototypes, justify plans, and explain how your product will appeal to its audience. (3,4) Make soft toys that EY children have designed- use fur front, felt back, stuffing and embellishment as appropriate.</p>

		<p>own design criteria and consider the views of others to improve their work (8)</p> <p>Enhancements: Look at real life bridges If possible, arrange a visit from an engineer</p>				<p>Children to evaluate their toys against set criteria and designs produced by EY.(6)</p> <p>Enhancements:</p>
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