



Design and Technology Curriculum

Summer Term

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Year 1

Learning Sequence		
1.	Exploring Glove Puppets	Provide a range of glove puppets for children to explore and compare fabrics, joining techniques, finishing techniques and fastenings used. What is a fabric? A fabric is a woven or knitted material either made from thread or yarn. How many parts is it made from? What is it joined with? Why do you think these joining techniques have been chosen? How is it fastened? Who might use and why? Encourage children to evaluate what they like, what they think works well. Introduce the Bright Beginners dilemma and their design criteria. Explain that each child will design and make a glove puppet for Bright Beginners. The completed glove puppets will then go into nursery for children to play with.
2.	Exploring Fabrics	Recap the Bright Beginners dilemma and their design criteria. Recap what a fabric is. Provide a range of different fabrics. Pass the Fabric. Children sit in a circle and pass a piece of fabric around. When the music stops children say a word to describe the fabric, then continue to pass it on. Continue for 3 or 4 stops. Does anyone know the name of the fabric? Repeat for different fabrics/yarn. Spot the Fabric. Children work in groups and have a glove puppet on their table. Children become 'fabric investigators' to name all the materials used to make the glove puppets. Glove puppets will be rotated. Children explore and investigate the fabrics to determine which is the best for the purpose of the product they are creating using what they found out from being fabric investigators.
3.	Exploring Joining Techniques	Explain that we are going to be exploring different ways to join fabrics. Model different techniques for joining fabrics and attaching other materials e.g. glue, stapler, sticky tape and safety pin. Discuss the advantages and disadvantages of each technique. Has anyone used these techniques before? What were you making? What were you joining? Transform a piece of fabric. Children are each given a square of either binca, felt or hessian. Children choose smaller pre-cut fabric shapes and join them to their larger piece. Just a few pieces should be added. Children should explore the different techniques modelled to join their pieces to the background fabric. Children attach sequins, buttons, string, wool, thread and ribbon using the same techniques.
4.	Exploring Shapes and Templates	Explain that we are going to be making our glove puppet template. Model how to create a simple template for a glove puppet using appropriate tools to pin the template to the fabric, mark out and cut out the relevant fabric pieces for the product. Encourage children to start thinking about what kind of glove puppet they would like to design and make and which shapes would be relevant to this. Encourage children to review their template try again if they are not happy with the shape.
5.	Designing	Recap the Bright Beginners dilemma and their design criteria. Model the design process for children. Discuss and create non-negotiables together as a class i.e. what the design must have and the materials and equipment that we will need to make them. Model using knowledge from the exploration stage to create their template using card and paper.
6.	Making and Evaluating	Children to use their design to make their product. Model following their design to ensure the product made looks like the one that they designed. Throughout the making process children should be encouraged to evaluate their product as they are developing it and identify strengths and possible changes they might make. Model how to use simple finishing techniques to improve the appearance of a product. Once children's products are finished model how to evaluate them by discussing how well it works in relation to the purpose and by asking questions about what they have made and how they have gone about it.

Summer Term

Year 2

Learning Sequence		
1.	Exploring Wheeled Products	Walk around school to find examples of how wheels and axles are used in everyday life. Collect/provide a range of wheeled products such as toys and everyday objects and ask the children to discuss. Through questioning, introduce relevant vocabulary and direct children's observations to the number, size, position, methods of fixing wheels and axles. How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round? Children draw an example of a wheeled product, identifying the user, purpose and labelling the main parts e.g. body, chassis, wheels, axles and axle holders. Introduce Early Explorer's dilemma and their design criteria. Explain that each child will design and make moving vehicle for use in Early Explorers.
2.	Exploring Wheels and Axles (Construction Kits)	Recap Early Explorer's dilemma and their design criteria. Recap definitions of wheels and axles. Show the children a picture of the underside of a vehicle. Focus their attention on the wheels and axle. Disassemble a toy car so children can see all the parts that work together to make it move. Explain that children will be using construction kits with wheels and axles to make a vehicle which moves. Demonstrate to children using construction kits how wheels and axles may be assembled as either fixed axles or free axles. Wheels and axles can be assembled in two different ways: either the wheel is attached tightly to the axle and the axle is free to rotate, or the axle is fixed with the wheel free to rotate around it. Children to work in pairs to use the construction kits to create both fixed and free axles. Discuss both the fixed and free axles they have made today. Which would they consider to be the better axle and why?
3.	Exploring Wheels and Axles (Everyday Materials)	Recap definitions of wheels, axles and chassis. Remind children of how wheels and axles may be assembled as either fixed axles or free axles. Explain that this lesson, instead of using construction kits we will be exploring making wheels and axles out of everyday materials. Provide examples and discuss as a group what materials would be good to make wheels out of, then repeat for axles. Demonstrate to children using everyday materials how wheels and axles may be assembled as either fixed axles or free axles. Ensure children are taught how to mark out, hold, cut and join materials and components correctly. Working in pairs children to explore using combinations of everyday materials to assemble some examples of fixed and free axles. Working in small groups with an adult children to be introduced to the option of a wooden dowel. Children to be taught how to use small hand tools (junior hacksaw) safely and appropriately. Discuss materials used, how they have been used, which worked well/not so well.
4.	Exploring Chassis	Recap fixed and free axles. Introduce children to what a chassis is. Explain that an axle needs to be attached to the chassis (said 'shah-see'). A chassis is the frame upon which the rest of the vehicle is built. Provide examples and discuss as a group what everyday materials would be good to make a chassis out of. Demonstrate to children using everyday materials to make a chassis keeping in mind that whatever chassis made, the axle needs to be able to be attached to it. Discuss as a group possible ways of attaching the axle to the chassis. Ensure children are taught how to mark out, hold, cut and join materials and components correctly. Working in pairs children to explore using combinations of everyday materials to create a chassis. Children to explore different ways of attaching the axle to the chassis using joining techniques. Discuss materials used, how they have been used, which worked well/not so well, how well the axle is attached, which joining technique was the best and why?

Lesson Sequence		
5.	Designing	Recap Early Explorer's dilemma and design criteria. Discuss who will be the intended user of the moving vehicle. How could they make it appealing for this person? Model with the children how they could design their vehicle. Talk the idea through first then develop a method through illustrations and notes. Remind children of the previous work undertaken looking at fixed and free axles, chassis types, joining techniques and materials. Use the design proforma provided to record a plan of what they will do to make their moving vehicle. They need to think about materials, method and equipment needed.. Discuss ideas and refer back to the original design criteria when explaining things they have done well in their design. Other children should also give their opinions and suggestions for improvements.
6.	Making and Evaluating	Recap Early Explorer's dilemma and design criteria. Re-cap the necessary safety precautions when using small hand tools (small group with an adult). Help children to get organised for their making. Encourage them to follow the plan they made by choosing the materials and equipment they planned to use. Children need to carefully follow their plans however, they should be encouraged to test their design as they are making it and make adjustments accordingly. They should note any changes on their plans. Children should continuously evaluate their vehicle as it is developed, identifying strengths and possible changes they might make. Children evaluate their work and explain what they did and talk about what went well and what could have been improved. Have they met the original design criteria?

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Year 3

Learning Sequence		
1.	Exploring Cushions	Provide a range of cushions and images of cushions and ask the children to discuss what cushions are used for, where they can be found, the design, pattern and decoration. Explain that they serve a purpose, as well as being aesthetically pleasing, explain that to call something aesthetically pleasing means that you consider it beautiful and satisfying, something that fulfils all of your needs and qualities for beauty in one object. One cushion on each table. Children to investigate the cushions looking at the different stitches, joins, fabrics and finishing techniques. Children to record any observations made. Introduce Mrs Brown's dilemma and her design criteria. Explain that each child will design and make a cushion for use in the Library when children go in to read.
2.	Exploring Cross Stitch	Recap Mrs Brown's dilemma and her design criteria. Recap what aesthetically pleasing means. Recap what a fabric is. Recap any techniques children know for joining fabrics together (temporarily or permanently). Focus on running stitch and explain that today children will be exploring a new stitch called cross stitch (ask children what they think it might look like given the name). Model threading a needle and tying a knot in the end. Then demonstrate how to sew using a cross stitch. Explain that this stitch is stronger than the running stitch as it works in several directions rather than just one. When do you think we would use cross stitch? Would it be a good stitch to use if you were sewing an edge? Why not? Explain that it is a decorative stitch (form of embroidery) used to embellish items and make them aesthetically pleasing. Children to work in pairs to practise sewing using a cross stitch. Was it easy or hard to sew a cross stitch? How is it different from running stitch? Discuss useful tips and tricks learned today and record them on the board.
3.	Exploring Appliqué	Recap Mrs Brown's dilemma and her design criteria. Recap what aesthetically pleasing means. Recap what cross stitch is. Explain that today children will be exploring another technique called appliqué which is a French word which simply means applied. It refers to a form of decoration on fabric. This is another technique which can be used alongside embroidery (cross stitch) to make products more aesthetically pleasing. Ask for help when threading and tying a knot for the needle and thread. Demonstrate how to cut out a shape from one material and lay it on top of another material (contrasting materials and colours work really well here). Then model using cross stitch or running stitch to sew around the edge of the patch material – the stitches will reinforce the shape cut so keep that in mind. Children to work in pairs to practise appliquéing using either cross or running stitch. Which stitch worked better? Did your shape retain its shape once it was appliquéd on? Discuss useful tips and tricks learned today and record them on the board.
4.	Exploring Templates	Recap cross stitch and appliqué. Recap the design criteria again. Explain that children's cushions will be made by cutting out two identical pieces of fabric, which they will then decorate using cross stitch and appliqué. The two pieces of fabric will then be put face to face and a seam sewn around the outside edge – leaving a 4cm gap. The gap will then be used to turn the cushion inside out before it is stuffed and finally sewn up. Explain that in order to understand this better, we will be disassembling an existing cushion to gain an understanding of 3D shape, pattern and seam allowances. We will then use the disassembled cushion to make 2D paper pattern templates. Demonstrate how to disassemble a cushion and use it to make a 2d paper pattern. Children work in small groups to disassemble their cushions and each create their own individual 2d paper pattern.

Lesson Sequence

5.

Designing

Recap Mrs Brown's dilemma and her design criteria. Explain that this is our starting point and we will need to keep referring back to this to make sure our design reflects what they want/need. Discuss reading as a theme and create a mind map of possible things cushions could include (books, book characters, words, phrases etc.). Refer back to the design criteria and discuss the need to remember that our target audience is quite broad, so the cushions will have to appeal to a wide target audience. Children to discuss what their individual cushion could look like. Take feedback. Children to sketch out some ideas on their design proforma. Model how to discuss ideas and how much they fulfil the design criteria. Have they designed a cushion and considered how they are going to make it aesthetically pleasing and centred on the theme of books. Children develop their designs and choose one to move forward with as their final design. Children annotate their design features.

6.

Making and Evaluating

Recap Mrs Brown's dilemma and her design criteria. Discuss and model safe use of any tools children may need to use. During the making process encourage children to evaluate their product as it is developed, identifying strengths and possible changes they might make. Explain that certain parts may need to be altered as the construction progresses and problems are encountered e.g. one material may not compliment another so an alternative may need to be sought and that this should be recorded on their final design. Discuss problems encountered and how children solved them. Have you had to alter you design at all? In what way? Why? How does your alteration make it better? Look at the design criteria. Model how to evaluate their product thinking about how well it has met its intended purpose. Children work in pairs to evaluate each other's product and record any observations made.

Summer Term

Year 4

Learning Sequence		
1.	Exploring Warburtons	<p>Look at the slogan 'Bakers Born and Bred'. Does anyone recognise this slogan? Does anyone know which company it belongs to? Explain that the Warburtons family are leading pioneers in the bread industry. Give a definition for the word pioneer: develop or be the first to use or apply a new method, area of knowledge, or activity. Warburtons were the first to develop and apply many new things. Provide information and important statistics that show the giant brand of Warburtons in the current bread industry market. As a group create a timeline which details key events in Warburtons history in chronological order. Discuss if you had to choose one key event that was central to the great success of the Warburtons family and brand, what would it be and why? If you had to choose one key person that was central to the great success of the Warburtons family and brand who would it be and why? Introduce Warburtons dilemma and their design criteria. Explain that each child will design and make a new bread product for Warburtons.</p>
2.	Evaluating Existing Products	<p>Has anyone eaten Warburtons bread at home? Which type of bread was it? Why did you like it? Explain that these types of questions would go into a market research. Before developing a new product it is essential to research the products that are already on the market to make sure you aren't repeating them. It is also important to see what is popular in that market so you can base your own product design around this. Explain that Warburtons make a wide range of breads and today the children are going to be tasting and analysing the existing range with a view to developing a new product. Children undertake some market research on the different breads. The whole class will taste the same bread at the same time and then the children will write down their own ideas and opinions. Provide your own personal feedback on the different breads. Children need to take this into consideration when collating the overall feedback. Children analyse and collate the market research for their table and feedback to the team. They need to think about which bread is the most popular and why, and which one was the least popular and why. Allow some time for the children to gather their ideas together. Take feedback from each table ensuring they have shown the ability to closely analyse the products looking at the characteristics.</p>
3.	Design Criteria and Shaping	<p>Explain to the class that their challenge is to design and make a new type of bread. Ask children to work in pairs to draw up a simple design criteria and record any ideas. Ask the children to think back to the last session and what made certain breads appealing as a product. Also ask them to think about what was appealing to their teacher. What must their product include to be successful? (<i>Note the design criteria needs to mention shape and must include at least one added ingredient.</i>) For e.g., The bread product for Warburton's should:</p> <ul style="list-style-type: none"> • Be full of flavour. • Be cooked perfectly, not over baked and not under baked. • Have risen well and be a good colour on the outside. • Have at least one added ingredient. • Be an appealing shape. <p>Children draft their design criteria. Listen to feedback. This will allow you to assess how well children are able to develop design criteria to meet the aims and goals of the product. Create a class design criteria. Explain that for the next part of the lesson the children are going to concentrate on the part of the design criteria which focuses on the shape of the bread. Watch the Great</p> <p>British Bake Off clip which demonstrates how to shape bread rolls. Prepare children by recapping food hygiene rules. Children will use the prepared salt dough to work in pairs to shape their different bread rolls. The first two will be the Round Rolls and the second two will be the The Knot. Children will then be given the chance to design their own shape from the two remaining pieces of dough. The salt dough will then be dried or baked ready to evaluate next week.</p>

Learning Sequence

4.	Designing	<p>Look at the salt dough bread rolls from last lesson. Children to circulate around the classroom to look at the different shapes. Which shapes do you find appealing? Refer back to the Design Criteria created as a class last session. Explain that in order to be successful as a product, the new bread must have at least one added ingredient. Children taste and smell the ingredients provided and experiment with combining ingredients to gather ideas. Recap the design criteria and ensure that this is clearly displayed throughout the next stage of the designing process. Model how to create a design map of ideas. All designs will start with a basic bread roll recipe. Leave the design criteria up for children to refer to. Children to create four initial ideas for their breads. Encourage them to be original with their thinking whilst including features that will appeal to their intended audience. They should make clear links between the research and the design. As a class share ideas and discuss. Which design do you think is most original? Why? Which design do you think meets the specification on the design criteria best? Why? Consider the views of other children and edit your designs accordingly.</p>
5.	Final Design	<p>Recap and clearly display the design criteria. Explain that they will use their starting ideas from last lesson and then decide which one they would like to base their final design. Discuss the finish of the bread. For soft crusts and extra shine, brush finished bread with melted butter and cool uncovered. For crispier crusts, brush loaves with a mixture of one egg white and one tablespoon of cold water before baking. Model how to create a final design. Children work in pairs to help them create their final designs, clearly communicating their ideas. Children pitch their ideas to the team (two minutes to explain their design in as much detail as possible). Model a pitch before allowing time for children to practise their pitch and then invite some pairs to pitch their new design. Were they able to clearly communicate their final design?</p>
6.	Making and Evaluating	<p>Demonstrate to the class how to make bread rolls. Add in grated apple and raisins at stage 7 of the recipe to model the process. <i>(Children will need to be precise with the measurement of ingredients. It is also important they clearly understand how to knead the dough correctly.</i> Invite some children to have a go at kneading the dough. Children work in pairs to follow the Bread Rolls Recipe and their designs from last lesson to make their bread. It is important that they are referring to the design criteria as they make their bread. Encourage children to implement improvements as their designs develop. Once the bread has cooled - Blind testing. Children will place their bread down on a table to be tasted by Warburtons. Warburtons will taste the bread and offer their opinions with reference to how well it has met the original design criteria. (This process will model how to evaluate a product to support the children when they write their own evaluations). Children complete an evaluation of their bread. They must ensure they are evaluating against their design criteria and considering the views of Warburtons.</p>