



Gillingstool – Design and Technology - Long Term Plan

Reception: Expressive Arts and Design – Creating with Materials			
	Autumn	Spring	Summer
Unit	All about Me / Celebrations	Superheroes / Journeys	Minibeasts & Growing / The Farm
Year R	<p style="text-align: center;"><u>3D Models</u></p> <p style="text-align: center;">Focus: cutting, sticking and joining</p> <p style="text-align: center;">Link to topic: All About Me</p>	<p style="text-align: center;"><u>Building: Vehicles</u></p> <p style="text-align: center;">Focus: Construction kits and loose parts</p> <p style="text-align: center;">Link to topic: Superheroes / Journeys</p>	<p style="text-align: center;"><u>Food: Smoothies</u></p> <p style="text-align: center;">Focus: A healthy snack</p> <p style="text-align: center;">Link topic: Growing</p>
	<p>Investigate and explore: The children should have regular opportunities to explore cutting, gluing and joining papers, card and fabrics as part of planned CP activities. Challenge the children to create tubes by rolling paper and joining it. Discuss during CP – When is it best to use glue / tape to join? Challenge the children to make a collage of their face.</p> <p>Design and Make : The children will look at themselves and talk about their body parts. What kind of shapes represent each part? Can you find junk materials that are these shapes? The children will then make a model of themselves from junk modelling materials and then add facial features using plastic tops, buttons, wool etc. Can they colour match?</p> <p>Evaluation: As a class or small group the teacher / TP will hold up a model. Look at the features together – can you guess who it is? What helps you to guess who it is? E.g. hair / eye colour / style.</p>	<p>Investigate and explore: The children will have previously had opportunities during CP to play and experiment with a range of construction kits and loose part play. They should be given the opportunity to explore a range of construction with wheels.</p> <p>Design and Make: Children may select a construction material with which to build a moving vehicle (e.g. Batmobile, Cat Woman Bike, Wonder Girl jet, Captain America bike). They should be challenged to adapt and change as they build it to add extra detail e.g. a seat, wheels, steering wheel etc. They should then draw and label a simple picture of their finished product.</p> <p>Evaluation: The child should have opportunity with an adult to discuss their vehicle. What are they proud of? Did they have to make any changes? Would they like to ass anything else? Some children may go on to use another construction kit to make another vehicle and compare the two.</p>	<p>Investigate and explore: Children will have the opportunity to name and taste a range of fruits and talk about their likes and dislikes. They will talk about why fruit is a healthy snack. (May link to story 'Handa's Surprise' or 'The Hungry Caterpillar'.</p> <p>Design and Make: The children will be designing and making their own fruit smoothies. They will select three fruits to put into their smoothie mix. They will wash and chop their fruits. Adults will support to mix in blender.</p> <p>Evaluation: The children will evaluate the taste and appearance of their smoothie orally within a small group.</p>



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Unit		Thornbury/Cardiff	Pioneers	Pirates
Year 1/2	A	<p><u>Model making: Castles</u></p> <p>Focus: Joining shapes Link to History: Castles</p>	<p><u>Food: Healthy eating – Fruit salad</u></p> <p>Focus: chopping, peeling, slicing Link to Science: Plants</p>	<p><u>A moving picture</u></p> <p>Focus: levers and sliders Link to History: Pirates</p>
		<p>Investigate and explore: The children will start by looking at a collection of castles and naming the 3D shapes they can see within it. e.g. cuboid, cone, cylinder. They will investigate how to make some of these using paper. They will experiment making their model using 3D shapes.</p> <p>Design: The children will design their own simple castle in pairs. They should draw a simple plan using 3D shapes. E.g. box for centre, cylinder towers, cone tower tops. They will label each part and list resources needed. They will consider how to embellish / decorate the finished product.</p> <p>Make: The children will work in pairs to make their model using a range of cutting and joining techniques. They will then decorate the finished product.</p> <p>Evaluation: A walking gallery will be used to talk about each other's work. What shapes are used? How is the product decorated? What kind of castle is it? (haunted, fairy tale)</p>	<p>Investigate and explore: Children will make the link to Science and PSHE (healthy me). They will have the opportunity to explore a range of fruits and talk about their taste, likes and dislikes. They will sort fruits into categories of those needing peeled / not, pips removed / not etc. They will talk about which fruits are most visually appealing e.g. bright and colourful.</p> <p>Design: The children will select 4 of their favourite fruits to make a simple fruit salad. They will wash, peel, slice and chop fruits using knives safely and present them in a bowl.</p> <p>Evaluation: Children will talk about the presentation / appearance / taste / textures of their fruit salad after looking at it and then eating. What was their favourite fruit – why?</p>	<p>Investigate and explore: Children will look at a collection of pop-up books and examine how they work. They will have the opportunity to create a mock lever and slide. They will use hole punch, paper fasteners and stapler.</p> <p>Design: The children will design their own pirate picture with a lever and slider.</p> <p>Make: The children will make a moving picture.</p> <p>Evaluation: The children will work with a partner to evaluate their product with a partner using design criteria. Partner to feedback something they think works well.</p>



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		Autumn	Spring	Summer
Unit		Weather around the World	Flight	Castles
Year 1/2	B	<u>Textiles: Puppets</u> Focus: Sewing Link to Geography: Weather / climates	<u>Food: Sandwiches</u> Focus: cutting, spreading, chopping, combining foods Link to Geography: Flight	<u>Mechanisms: Moving model</u> Focus: Winches / axles Link to History: Castles
		<p>Investigate and explore: The children will learn a range of simple sewing techniques: threading needle, starting and ending running stitch. They will use binca and wool to create a simple coaster (cut 15cm of binca and children use running stitch to sew 2 / coloured squares). They will then explore how to draw simple shape and make pattern using paper to then pin onto felt and cut out. Then will sew to centre of binca.</p> <p>Design: The children will be given a simple hand puppet outline to design as an animal of their choice (link to climate – e.g. animal from a hot country). They will draw their design plan using simple embellishments for features (e.g. button noses, pipe cleaner whiskers, wool hair / manes). They will label and annotate it.</p> <p>Make: The children will work in small groups with adult guidance to use running stitch to stitch two parts of puppet. They will sew on embellishments or may use fabric glue.</p> <p>Evaluation: A photo of each child with puppet will be taken and a simple oral evaluation will take place. What new skills did you learn? What are you most proud of? What changes would you make to further improve your puppet?</p>	<p>Investigate and explore: The children explore the main food groups and consider why a sandwich / wrap is an important part of a picnic lunch. (IT could contain all food groups). They will explore sandwich fillings and talk about their favourite. Are these sweet or savoury?</p> <p>Design: The children will be given a design sheet with the main food groups on. They must design a sandwich that has these. E.g. bread - carbohydrates, butter – dairy, tuna – protein, cucumber – vitamins, mayonnaise – fats.</p> <p>Make: The children will first watch adult model how to make sandwich. This may link to writing instructions! They will then make their own: may involve spreading, chopping, slicing and mixing. They will present it on a plate.</p> <p>Evaluation: Children may eat their sandwich as part of a class picnic, and then evaluate their sandwich using a scale of 1 – 5 tick list. They will rate appearance, taste and healthiness.</p>	<p>Investigate and explore: The children will be asked to bring in a collection of toys that have a winch. These will be examined and the teacher will show PPT display of photos of winches e.g. fire engine, rescue helicopter, well. The children will draw and label a simple winch model. They will talk about the purpose of each part. They will have a chance to experiment with making a simple winch using a straw to twist up string.</p> <p>Design: The children will design a winch to lift water from a castle well. They will be shown model images of how to use a tall slim box – holepunch top for dowelling / straw to go through – tie on string and pot for bucket.</p> <p>Make: The children will make their winch and then create their well.</p> <p>Evaluation: Challenge the children to use the winch to lift small objects – does it work? Do you need to make any adaptations?</p>



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Unit		Disasters	WW2 in Thornbury and Bristol	Stone Age – Iron Age
Year 3/4	A	<p><u>Food: one pot meal</u> Focus: combing and heating simple foods Link to Geography: Disasters</p>	<p><u>Structures: wooden shelters</u> Focus: using a clamp and saws Link to History: WW2</p>	<p><u>Switches: Torch</u> Focus: circuits and switches Link to History: Stone Age – Iron Age</p>
		<p>Investigate and explore: The children will have made a range of simple sweet and savoury foods, but this will be their first experience of cooking in DT. Discuss the types of foods that you would be able to make if you have survived a disaster and have limited cooking facilities. E.g. camp fire, simple gas stove. Talk about how it is still importance to have a balanced diet and the food groups.</p> <p>Design: The children will design a nutritious meal using a simple combination of food groups that can easily be made using one pot on a hob. E.g. paella / stir fry.</p> <p>Make: The children make their dish in small groups. They measure ingredients, peel, chop, slice and grate.</p> <p>Evaluation: Children will create their own evaluation sheet using success criteria to evaluate their food product.</p>	<p>Investigate and explore: The children will have learned about air raid shelters in WW2. Look at these and the materials they were made from. Challenge the children to find out what shapes are the strongest (triangles – why?). Look at different structures, such a range of famous bridges – how are they made to withstand weight? Discuss materials and those which are best for different structures (e.g. to take weight / waterproof / fireproof / flexibility).</p> <p>Design: The children will be challenged to make a model of shelter, including the simple things that would be found inside it. This maybe a modern day shelter – using the strongest shapes.</p> <p>Make: The children will measure, clamp and saw wood to make a frame, and then use simple joining techniques to add detail.</p> <p>Evaluation: The children will talk about newly acquired skills, and discuss the need for accuracy in measurements. What improvements / changes would be made in future designs / products?</p>	<p>Investigate and explore: The children will have already had experience of making simple circuits. If they were in a dark cave today they would need a torch or head lamp! They will briefly look at the history of fire – gas lamp – electric lamp. They will have opportunities to look at and take apart a torch. They will discuss how the brightness / colour may be different between torches. They will have the opportunity to experiment with making a simple electrical circuit to make a bulb light – can a switch be added to turn it on and off.</p> <p>https://www.science-sparks.com/diy-torch-light-simple-circuit/</p> <p>The teacher will model how to make a simple torch (see above link).</p> <p>Design: The children design and draw their own torch. They will label, annotate and give reason for design choice.</p> <p>Make: The children will make their torch following plan.</p> <p>Evaluation: The children will work with teacher to create evaluation sheet – what points should be evaluated? They will then evaluate their torch against these criteria.</p>





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Unit		Greece / Crete	Romans / Invader and Settlers	A Journey Down The Nile
Year 3/4	B	<p><u>Moving model: monsters</u></p> <p>Focus: pneumatics Link to History: Greece</p>	<p><u>Textiles: Money containers</u></p> <p>Focus: sewing Link to Science: Animals including humans</p>	<p><u>Food: baking</u></p> <p>Focus: using a rising agent Link to History: A Journey Down The Nile</p>
		<p>Investigate and explore: Children will look at a film clip / images of different machines that use pneumatics and will learn how pneumatics work to help lift a load. The children will then experiment with using pumps, empty bottles and syringes to show how air can move / lift. See for ideas: https://www.youtube.com/watch?v=5QqinrOcbIM https://www.science2life.com/pneumatic-monsters/</p> <p>Design: The children will listen to a greek myth and look at 'monsters' and use this as inspiration to design their own 'moving monster' head model. They will draw, label, annotate and list the resources they will need.</p> <p>Make: They will follow their design plan to make their moving monster – making adaptations as needed.</p> <p>Evaluation: The children will talk about the successes of their monster and discuss any adaptations needed and then complete a written evaluation in detail.</p>	<p>Investigate and explore: Children will briefly look into the history of money and coins. They will look at different money containers. They will explore the designs of modern days purses and wallets. They will already have made templates, patterns and joined fabrics using running stitch. They will make a simple pattern using a range of buttons – and learn how to sew on a button / fastener. They will also look at how to use small stitches and turn an item inside out after sewing to hide the stitching.</p> <p>Design: Children will design their own purse or wallet (could be a Mother's Day present). It may have an inside pocket and at least one fastening.</p> <p>Make: They will make a paper pattern and then pin this to the fabric before cutting out. They will learn the false side of fabric must face each and then besewn – then turn inside out to show correct side of fabric. They may add inside pocket, fasteners / button and decorate using fabric pens / sequins / beads or felt.</p> <p>Evaluation: Peer evaluate in talk partners, before writing up individual evaluation. Evaluate considering appearance, quality, strength etc.</p>	<p>Investigate and explore: The children will briefly look at the foods eaten by the Egyptians – bread was a staple diet as wheat and barley grew easily along The Nile. The children will have opportunities to explore different types of breads from around the world e.g breads, wraps, flat, sourdough, pitta. They will also look at use of yeast and recent invention of the food processor and bread maker which makes making bread quick and easy.</p> <p>Design: The children will make their own bread rolls in small groups. They will plan their presentation e.g. shape, and any extras they wish to add e.g. oat topping etc.</p> <p>Make: The children will follow instructions for making their bread rolls . They will measure, sieve, rub, knead, roll and shape. They will talk about the need to let the dough prove before baking.</p> <p>Simple recipe: https://www.bbcgoodfood.com/recipes/easy-bread-rolls</p> <p>Evaluation: The children may have a picnic afternoon tea and orally evaluate their food product using agreed criteria.</p>




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Unit		Energy	Medicine	Ancient Greece
Year 5/6	A	<p><u>Mechanisms: Pulleys and gears</u></p> <p>Focus: pulleys and gears Link to Science: Forces</p>	<p><u>Mechanisms: Cams</u></p> <p>Focus: cams Link to Science: Animals including humans</p>	<p><u>Food: A three – course meal</u></p> <p>Focus: food from another culture (Greece) Link to History: Ancient Greece</p>
		<p>Investigate and explore: The children will talk about how machines with pulleys and gears help us in life and make a job easier. They will explore how they work and draw labelled and annotated drawings of these. They will then go on to explore how to make a simple motorised car: https://www.tts-group.co.uk/blog/2016/11/02/pulley-motorised-vehicle.html They will discuss how to use reinforcements to make joints stronger. </p> <p>Design: The children will be given the measurements for the vehicle frame and a list of equipment needed. They will then be challenged to design a 'covering' of their choice to personalise their vehicle. They will draw a detailed design plan.</p> <p>Make: The children may work independently or in pairs to follow their plan to make their vehicle. They will follow instructions to make the basic frame and moving parts, including a pulley, and then personalise it using materials of their choice. They will use hand saws, card reinforcements and G-clamps.</p> <p>Evaluation: The children will complete a written evaluation against the agreed design criteria. They may test their vehicle in a group 'race'.</p>	<p>Investigate and explore: The children will explore cams and how circular movement is turned into linear. They will explore different shapes cams, draw, label and annotate them. They will discuss the purpose of cams in real-life machinery.</p> <p>Design: The children will design a cam to illustrate a scene involving a moving animal (Science link). They will be given agreed design criteria, such as the measurements of the frame and axle. They will draw, label and annotate their design plan. e.g. </p> <p>Make: The children will use wood, dowelling and a range of simple tools, including a hand saw, hand drill and clamps to cut and make holes. They will use paints to decorate their cam toy.</p> <p>Evaluation: The children will orally evaluate their toy in pairs against agreed criteria before completing an individual evaluation.</p>	<p>Investigate and explore: The children will re-cap what is meant by a balanced diet. They will explore the Mediterranean diet and it's health benefits (it is considered to be the healthy diet type). They will have the opportunity to taste and explore some greek foods, and comment on the appearance, texture and tastes of these. They will explore some traditional greek dishes.</p> <p>Design: The children will work in pairs / small groups to design a three course meal (greek menu). They will talk about design criteria: taste, range of textures, colours, appearance etc. Each group will then give presentation to class and vote for 3 dishes that they will prepare and cook for their guests (ideally this will be a day given over to a café where they will invite staff and parents for a 3 course meal). They should consider vegetarian / vegan option. They will work out prices, design menus, make adverts, table decorations, table plans etc. They will list the roles needed on the open café day – kitchen staff, waiting, washing up etc. Tickets will be sold to parents and staff in advance.</p> <p>Make: The children will work in groups to prepare each course in advance - so that as much food is ready before the open café day.</p> <p>Evaluation: A report will be written for a page of school new letter.</p>



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		Autumn	Spring	Summer
Unit		Climate	Slavery / Fair Trade	Mayan / Amazon Basin
Year 5/6	B	<p><u>Textiles: sewing</u></p> <p>Focus: sewing techniques Link to Christmas (create an item to sell at fair)</p>	<p><u>Mechanism: Large scale – problem solving</u></p> <p>Focus: problem solving / adaptation Link to Geography: Slavery / Fair Trade</p>	<p><u>Food: A three course meal</u></p> <p>Focus: planning a meal (using locally produced and seasonal foods) Link to cross-curricular topic</p>
		<p>Investigate and explore: Explore how designers may carry out surveys to find gaps in the buyers' market. How do designers adapt designs to meet the buyers need? The children will then go on to discuss a range of textile products that they may make (for a profit) at the Christmas Fair. They may look at fabric key rings, decorations, stockings etc. They may vote for a select few products to make. They will agree on the criteria for making a high quality item that could be sold.</p> <div style="text-align: center;">  </div> <p>Design: The children will then make a 'mock-up' of their item in paper or scrap material. They will do this by drawing their design plan, making their own paper pattern as a template. They will pin material to template before cutting out. They will use running stitch to sew together (with outside pattern if fabric facing in) and then turn out, so that stitching is not visible. They will adapt plan and adjust to make improvements as necessary.</p> <p>Make: Each child will aim to make two textile decorations to sell at the Christmas Fair. These should be embellished using fabric, sequins or beads.</p> <p>Evaluation: How can products be displayed to make them visually pleasing for the customer? Do any alterations need to be made? What would a reasonable selling price be? Use spreadsheet to show costings.</p>	<p>Investigate and explore: The children will discuss how fair trade is a movement that strives for fairer working conditions – they will go on to explore a range of other projects which supports people around the world, such as water aid. This term the children will work on a range of 'forest skills' where they will have opportunities to build a shelter, design a 'tool' for lifting water and cooking a simple snack outdoors.</p> <p>Design and Make: Challenges:</p> <ul style="list-style-type: none"> • Can you work in a group to design a simple life size shelter using a range of materials? Can you make it strong enough to withstand a storm? (e.g. plastic sheeting, ropes, wooden sticks, branches, logs, large stones) • Can you design a 'mechanism' to lift a bucket of water? • Can you cook a simple snack using simple re-usable tools? <p>Evaluation: At the end of each session a walking tour of each groups' product will take place. Groups will discuss their product and how they adapted it to fulfil the challenge. The teacher may test it for strength and waterproof. Discuss.</p>	<p>Investigate and explore: Children will explore locally produced produces and why it is important to support local businesses. They will identify the foods that are locally sourced and discuss seasonal foods e.g. vegetables / fruit in season. They will have opportunities to taste and sample locally produced foods – including home grown.</p> <p>Design: The children will be challenged to produce a three-course meal for parents and staff in an open café. They will design a meal using locally sourced and seasonal foods and then vote for starter – main – desert. How do these compliment each other? – taste – appearance – balanced diet – colour etc. They will price foods, create advert, menu, tickets, table plans, job list etc.</p> <p>Make: The children will work in groups to prepare and make food ready for the open café. They will then serve and wait for guests. They will tidy and wash up.</p> <p>Evaluation: The children will create a questionnaire for guests to complete after their meal, and will also write an article including reviews for the school newsletter.</p>



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Scaffolds to support children with SEND

Design and Technology is a curriculum subject that requires children to use a wide range of tools and equipment safely. To enable a SEND child to access the curriculum the task, tools and equipment may need to be adapted to meet their needs. The following should be considered when planning a unit of work:

- Is the size of the project they are working on suitable and at a suitable working level? A project may be more suitable at a different scale / height or position. Some children may prefer to stand to work rather than sit.
- Is the project of a suitable size? Some children may benefit from being able to work on a project on a larger scale to support poor hand / eye or poor fine motor skills. It may be necessary to work on a slightly larger scale to support needs.
- Are the tools and medium the child is using the correct size? We have a range of sizes in tools such as: needles, scissors and food preparation equipment for children to use. A SEND child may wish to be given the choice of using slightly larger tools which will support both hand / eye and fine motor skill co-ordination.
- Does the child need extra health and safety measures in place? Most children will be able to work with the planned medium and use tools to work with these such as craft scissors, needles, hot glue guns, and peeling and chopping knives. However, it may be desirable to access the child's need and plan to use alternative equipment such as safety scissors, large plastic needles or to give extra support when using some more advanced equipment.