Design and Technology Curriculum Overview

	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanical Systems		Rescue Vehicle Autumn 1 To the Rescue	Moving Character Autumn 2 Animal Magic		Pop-up Book Autumn 1 Firework Maker's Daughter		Electric Car Spring 1 Because There's No PLANet B
Electrical Systems					Torch Summer 2 Unique Me		Electric Car Spring 2 Because There's No PLANet B
Structures	Roofs Spring 2 Run, Run as Fast as You Can		Table Tidy Spring 1 Sparks will Fly	Sandwich Box Summer 2 Fuel for School		Bird House Autumn 1 Kensuke's Kingdom	
Textiles	Link & Lace Autumn 1 Continuous Provision	Finger Puppet Spring 1 Julia Donaldson		Purse Spring 2 Ruthless Romans		Beanbag Toy Spring 1 Tomb Raiders	
Cooking & Nutrition	Biscuit Spring 2 Run, Run as Fast as You Can	Fruit Smoothie Summer 1 Sunny Southbourne	Fruit Salad Summer 2 Fit for Life	Sandwich Summer 2 Fuel for School	Soup Spring 2 Invaders & Settlers	Pizza Summer 2 Kick	Savoury Scones Autumn 2 Pig Heart Boy

St. Katharine's Primary School Design and Technology Progression Pathway Early Years

EY Structures Roofs	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Resources **(See DT folder)** DATA: EY Structures: Chairs for 3 Bears	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour and design. Share their creations, explaining the process they have used.	**1. Product, User, Purpose** To make a roof for the little pigs' house which cannot be blown down. **Investigative & Evaluative Activities** Prior to this project, children should have frequent opportunities to play with and explore a range of large and small construction kits that use different forms of joining e.g. magnetic, slot-together, stacking etc. They should also frequently explore materials that can be used to make things, such as: felt, cardboard, softwood, plastics, etc. Read The Three Little Pigs, introducing relevant vocabulary (house, roof, straw, sticks, bricks) and emphasise: user (pigs) and purpose (stable structure). Explore roofs around school, e.g., dolls house, school building, studio, gazebo, shed. Ask questions such as: *What is the purpose of the roof? What materials have been used? Why have these been chosen? Is the roof strong enough?* Use the correct technical vocabulary, e.g. roof, metal, wood, plastic, concrete, slate, clay, straw. **2. Focused Tasks** Using construction kits, ask children to explore making freestanding structures such as towers, walls, frameworks and shell structures, thinking about how to stop them from falling over and how to make them stronger. Demonstrate cutting (scissors), joining (glue, adhesive tape) and finishing techniques (painting) with a range of tools and materials that they are likely to use to make their roofs. Discuss the suitability of materials for their products. **3. Design** Ask the children to say what they are making (roof), who it is for (pig) and what it needs to do (not blow over). Ask them to think about the appearance and finish of their roof. They should physically arrange their materials and components and say what they are doing and have done. (Designing in EYFS is typically intuitive i.e. children design as they make.) **4. Make** Children make their roofs, selecting tools and materials from an appropriate range. **5. Evaluate** Children say whether they think their roof is strong enough.	product, user, purpose, house roof freestanding, stable, strong, structure, assemble, cut, join, fold, fix, materials, card, plastic, wood, metal, concrete, slate, clay, straw, scissors, cut, join, glue, adhesive tape, finish, paint

St. Katharine's Primary School Design and Technology Progression Pathway Early Years

EY Cooking & Nutrition Gingerbread Biscuit	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Resources (See DT folder) DATA: Y1/2 Preparing fruit and vegetables **Curriculum Links** PSHE: Being My Best – Healthy Eating	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour and design. • Share their creations, explaining the process they have used.	**1. Product, User, Purpose** To make a gingerbread biscuit for themselves to eat at a Fantastic Finale party. **Investigative & Evaluative Activities** Read The Gingerbread Man. Talk about different biscuits they have eaten. Look at and name the ingredients and utensils using the correct technical vocabulary, e.g. biscuit, flour, butter, sugar, eggs, ginger, baking powder. **2. Focused Tasks** Introduce basic food hygiene practices (tying up hair, washing hands, wearing apron) and the importance of following instructions to control risk. Use *The Eatwell Guide* to identify the different ingredients and the importance of eating different types of food. (Link to PSHE). Explain that sugary snacks should only be eaten occasionally and discuss healthier choices. Demonstrate mixing (mixing bowl and wooden spoon), cutting (rolling pin and biscuit cutter), and finishing techniques (decorating with raisins etc.) with a range of utensils and ingredients that they will be using. **3. Design** Ask the children to say what they are making (gingerbread biscuit), who it is for (themselves) and its purpose (to be appealing enough to eat). Ask them to think about how to decorate the biscuit so it is appealing. During the making stage, children should say what they are doing and have done. (Designing in EYFS is typically intuitive i.e. children design as they make.) **4. Make** Children make their dough and decorate their biscuit with adult help. They select appropriate utensils and ingredients. **5. Evaluate** Children say whether they think their biscuit is appealing and whether they enjoy the taste.	product, user, purpose, The Eatwell Guide, healthy diet, ingredients, biscuit, flour, butter, sugar, eggs, ginger, baking powder, dough, hygiene, wooden spoon, mixing bowl, rolling pin, biscuit cutter, appealing, oven, bake

St. Katharine's Primary School Design and Technology Progression Pathway Year 1

Y1 Mechanisms Emergency Vehicle	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Prior Learning EY Structures: Roof for The Three Little Pigs' House **Resources (See DT folder)** DATA: Y1/2 Mechanisms - Wheels and axles **Curriculum Links** Computing: Drawing package	**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 (e.g., cutting, shaping, joining and finishing); • select from and use a wide range of materials and components, including construction materials, according to their characteristics; **Evaluate** • explore and evaluate a range of existing products; • evaluate their ideas and products against design criteria; **Technical knowledge** • explore and use mechanisms (wheels and axles), in their products.	**1. Product, User, Purpose** To design, make and evaluate an emergency vehicle (with wheels and axles) for Y1 children to use during their Fantastic Finale. **Investigative & Evaluative Activities** Explore and evaluate a range of wheeled products such as toys and everyday objects. Through questioning, direct children's observations e.g., the number, size, position and 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?* Walk around school, looking at how wheels and axles are used in daily life. Read a story or non-fiction book to introduce relevant vocabulary and to emphasise user and purpose. Display an example of a wheeled product, stating the user and purpose, and labelling the main parts e.g., body, chassis, wheels, axles and axle holders. **2. Focused Tasks** Using construction kits with wheels and axles, ask children to make a product that moves. Demonstrate how wheels and axles may be assembled as either fixed axles or free axles. Show different ways of making axle holders and stress the importance of making sure the axles run freely within the holders. Ensure that children are taught how to mark out, hold, cut and join materials and components correctly. Using samples of materials and components they will use when designing and making, ask the children to assemble some examples of wheel, axle, axle holder combinations. **3. Design** Discuss the purpose and user of the emergency vehicle and develop class design criteria to guide the development and evaluation of the vehicles. Ask the children to generate a range of ideas. Develop their ideas through talk. Communicate one idea in an annotated drawing. **4. Make** Discuss the stages in making, including how to add finishing techniques. (They could use ICT: clip art, word processing, paint or simple drawing programs.) Make the vehicles using their design ideas. Evaluate against the class design criteria during the making process. **5. Evaluate** Complete an evaluation of the vehicle, communicating how it works and how it matches their design criteria, including any changes they made.	product, user, purpose, design criteria, annotated drawing, evaluate, assemble, cut, join, shape, finish, mechanism, moving, vehicle, wheel, fixed axel, free axel, axle holder, chassis, body, cab, materials, paper, card, plastic, wood

St. Katharine's Primary School Design and Technology Progression Pathway Year 1

Y1 Textiles Finger Puppet	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Resources **(See DT folder)** DATA: Y1/2 Textiles – Templates and joining techniques **Curriculum Links** Computing: Drawing package	**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 (e.g., cutting, shaping, joining and finishing); • select from and use a wide range of materials and components, including textiles, according to their characteristics; **Evaluate** • explore and evaluate a range of existing products; • evaluate their ideas and products against design criteria.	**1. Product, User, Purpose** To design, make and evaluate a finger puppet for Y1 children to use during storytelling. **Investigative & Evaluative Activities** Investigate and evaluate existing puppets. Explore and compare, identifying the user, purpose, fabrics, fastenings, joining techniques and finishing techniques. Question to develop children's understanding: *How many parts is it made from? What is it joined with? How is it finished? Why do you think these joining techniques have been chosen? How is it fastened? Who might use it and why?* **2. Focused Tasks** Investigate different fabrics to determine which is best for making a finger puppet. Demonstrate the use of a template or simple paper pattern. Children make their own. Demonstrate the correct use of appropriate tools to mark out, tape the template to the fabric and cut out the relevant fabric pieces for the product. Demonstrate appropriate examples of joining techniques for children to practise in guided groups: running and over stitch (including threading own needle), stapling, lacing and gluing. Talk about the advantages and disadvantages of each technique. Demonstrate examples of finishing techniques for children to practise in guided groups: sewing buttons, 3-D fabric paint, gluing sequins, printing. **3. Design** Discuss the purpose and user of the finger puppet and develop class design criteria to guide the development and evaluation of the puppets. Ask the children to generate a range of ideas e.g. *What parts will the product need to have and what will it be made from? What size will it be? How will it be joined and finished?* Develop their ideas through talk. Communicate one idea in an annotated drawing and mock-up. ICT could be used for symmetry and pattern ideas. **4. Make** Discuss the stages in making. Make the finger puppets using their design ideas. Evaluate against the class design criteria during the making process. **5. Evaluate** Complete an evaluation of the finished finger puppet, communicating how it meets the intended purpose and how it matches their design criteria. include any changes they made.	product, user, purpose, design criteria, annotated drawing, mock-up, evaluate, fabric, join, template, needle, thread, sew, running stitch, over stitch

St. Katharine's Primary School Design and Technology Progression Pathway Year 1

Y1 Cooking & Nutrition Fruit smoothie	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Prior Learning EY Cooking & Nutrition: Gingerbread Man Biscuit **Resources (See DT folder)** DATA: Y1/2 Preparing fruit and vegetables Y1 Fantastic Fruit Ppt Food Technical Vocabulary Cards **Curriculum Links** Science: Human Body – Senses Flowering Plants – structure PSHE: Being My Best – I can eat a rainbow & Eatwell	**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; **Make** • select from and use a range of tools and equipment to perform practical; • select from and use a wide range of ingredients, according to their characteristics; **Evaluate** • explore and evaluate a range of existing products; • evaluate their ideas and products against design criteria; **Cooking and nutrition** • use the basic principles of a healthy and varied diet to prepare dishes; • understand where food comes from.	**1. Product, User, Purpose** To design, make and evaluate a fruit smoothie for Y1 children to drink at Sports Day. **Investigative & Evaluative Activities** Examine a range of fruit. Discuss answers to questions such as: *What is this called? Who has eaten this fruit before? Where is it grown? When can it be harvested? What are its taste, smell, texture and appearance? What will it look like if we peel it or cut it in half? What are the different parts called?* (Link to Science: Structure of flowering plants). Smell and taste fruit in order to describe them through talking and drawing. e.g., *What words can we use to describe the shape, colour, feel, taste?* (Link to Science: Senses). Evaluate existing products (e.g., Innocent Smoothies) to determine what the children like best; provide opportunities for the children to investigate preferences of their intended users/suitability for intended purposes e.g. *What do you prefer and why? What might we want to include in our product to meet our user's preferences? Which fruit/vegetables might be the best for our product to match the occasion/purpose?* **2. Focused Tasks** Introduce basic food hygiene practices (tying up hair, washing hands, wearing apron) and the importance of following instructions to control risk. Demonstrate how to use a sharp knife and chopping board safely. (They can use a fork to hold the fruit to avoid cutting their fingers.) Children practise washing, peeling (without a peeler – e.g., bananas) and slicing fruit, e.g. *Do we eat the whole fruit? Why or why not? Which parts do we eat? What might we have to do before eating this? Why do we cut, peel and slice in this way?* Use *The Eatwell Guide* to talk about the importance of fruit and vegetables in a balanced diet: *Why is it good to eat fruit and vegetables? How many pieces of fruit/vegetables do you eat per day? Why is it important to wash fruit/vegetables before we eat them?* (Link to PSHE). **3. Design** Discuss the purpose and user of the smoothie and develop class design criteria to guide its development and evaluation. Ask the children to generate a range of ideas. Develop their ideas through talk: *What will you need? What fruit/vegetable will you need? How much will you need? How will you present the product?* Communicate one idea in an annotated drawing. **4. Make** Discuss the main stages in making a smoothie including the utensils and ingredients needed and the food preparation skills learned. Make the smoothie, choosing the utensils and ingredients. Ensure an adult supervises the blender. **5. Evaluate** Complete an evaluation of their finished smoothie, communicating how it meets the intended purpose and how it matches their design criteria. include any changes they made.	product, user, purpose, design criteria, annotated drawing, evaluate, fruit, senses, taste, smell, texture, appearance, soft, hard, sticky, juicy, crunchy, smooth, sweet, sour, sticky, sharp, crisp, hygiene utensil, knife, chopping board, blender, jug slice, peel The Eatwell Guide, healthy diet, vegetables, ingredients

St. Katharine's Primary School Design and Technology Progression Pathway Year 2

Y2 Structures Table Tidy	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Prior Learning Y1 Mechanisms: Emergency Vehicle EY Structures: Roof for The Three Little Pigs' House **Resources (See DT folder)** DATA: Y1/2 Structures: Freestanding structures **Curriculum Links** Science: Uses of materials	**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, mock-ups and ICT; **Make** • select from and use a range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing); • select from and use a wide range of materials and components, including construction materials, 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.	**1. Product, User, Purpose** To design, make and evaluate a container for themselves to use to support a book and contain pencils. **Investigative & Evaluative Activities** Explore structures around school, e.g., studio, gazebo, play trail, picnic tables and benches, directing children's observations through questioning: *What are the structures called? What is their purpose? Who uses them? What materials have been used? Why have these been chosen? How have the parts been joined together? How have the structures been made strong enough? How have they been made stable?* Draw and label one using the correct technical vocabulary, e.g. wall, framework, base, joint, metal, wood, plastic, brick, triangle, square, rectangle, cuboid, cube. **2. Focused Tasks** Using construction kits, ask the children to make a freestanding structure thinking about: *How can you stop your structures from falling over? How they can be made stronger and stiffer in order to carry a load?* Demonstrate measuring, marking out, cutting, shaping, joining and finishing techniques with a range of tools and materials that they are likely to use to make their structures. Discuss the suitability of materials for their products according to their characteristics. Ask children to fold paper or card in different ways to make freestanding structures, using masking tape where necessary to make joins. Encourage them to think about how folding materials can make them stronger, stiffer, stand up and be more stable e.g. *Can they support an object on top of their structures without it falling over or breaking?* **3. Design** Ensure the children understand what freestanding structure they will be designing, the user and its purpose: *Who will your product be for? What will be its purpose? What materials will you use? How will you make it strong and stable?* Agree on class design criteria to guide the development and evaluation of the product, e.g. the structure should stand up on its own, it should be large and strong enough to place a toy character inside. Communicate one idea in an annotated drawing and make a mock-up using construction kits or other materials. **4. Make** As a whole class, plan the order in which the structures will be made. Children could make their final products from construction kits, new and reclaimed materials or any combination of these, according to their characteristics. Evaluate their developing ideas against original design criteria. **5. Evaluate** Complete an evaluation of their finished structure, evaluating it against the class design criteria.	product, user, purpose, design criteria, annotated drawing, mock-up, plan, evaluate, freestanding structure, framework, edge, surface, straight, curved, square, rectangle, cube, cuboid, assemble, cut, join, fold, fix, materials, card, plastic, wood, metal, PVA glue

St. Katharine's Primary School Design and Technology Progression Pathway Year 2

Y2 Mechanisms Pop up Owl	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Prior Learning Y1 Mechanisms: Emergency Vehicle **Resources (See DT folder)** DATA: Y1/2 Mechanisms: Sliders and Levers **Curriculum Links** Computing: Drawing package	**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, mock-ups and ICT; **Make** • select from and use a range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing); • select from and use a wide range of materials and components, including construction materials, according to their characteristics; **Evaluate** • explore and evaluate a range of existing products; • evaluate their ideas and products against design criteria; **Technical knowledge** • explore and use mechanisms (e.g., levers and sliders), in their products.	**1. Product, User, Purpose** To design, make and evaluate a pop-up character for Y2 children to use during their Fantastic Finale storytelling. **Investigative & Evaluative Activities** Explore and evaluate a collection of books and everyday products that have moving parts, including those with levers and sliders: *What is it? Who is it for? What is it for?* Through questioning, develop children's understanding: *What do you think will move? How will you make it move? What part of the product moved and how did it move? How do you think the mechanism works? What else could move in the product? How well does it work?* Introduce and develop vocabulary: lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, in, out. **2. Focused Tasks** Demonstrate simple levers and sliders to the children using prepared teaching aids, e.g. a slider used to show a snail appearing from behind a stone, a lever used to show a butterfly flying to a flower. Through questioning, develop children's understanding: *How does the slider move? How does the lever move? Which part of the mechanism is the pivot? What does the movement of the slider and lever remind you of?* Demonstrate the correct use of tools and materials. Children develop their knowledge and skills by replicating the slider and lever teaching aids, adding pictures to their mechanisms. **3. Design** Ensure the children understand what they will be designing, e.g. *Who will your product be for? What will be its purpose? How do you want it to move? Will you use a lever or a slider?* Agree on class design criteria to guide the development and evaluation of the product, e.g. the mechanism should work smoothly, it should make the right type of movement. Communicate their ideas in an annotated drawing and make a mock-up using paper. Talk about, evaluate and share ideas with other children/adults. Discuss the finishing techniques the children might use e.g. using digital text and graphics, paint, felt tipped pens or collage. This is a great opportunity to use ICT. **4. Make** Discuss the order in which the mechanisms will be made. Make their product using their design ideas and criteria as an ongoing guide. **5. Evaluate** Complete an evaluation of their finished product, communicating how it works and how it matches their design criteria, including any changes they made.	product, user, purpose, design criteria, annotated drawing, mock-up, plan, evaluate, assemble, cut, join, shape, finish, materials, paper, card, masking tape, paper fastener, split pin, mechanism, slider, lever, pivot point, slot, bridge, guide

St. Katharine's Primary School Design and Technology Progression Pathway Year 2

Y2 Cooking & Nutrition: Fruit salad	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Prior Learning Y1 Cooking & Nutrition: Fruit smoothie **Resources (See DT folder)** DATA: Y1/2 Preparing fruit and vegetables pdf Y1 Fantastic Fruit Ppt Food Technical Vocabulary Cards **Curriculum Links** Science: Humans – Healthy Diet, Food Chains PSHE: Being My Best – My Body Needs …	**Design** • design purposeful, functional, appealing products for themselves and other users based on design criteria; • generate, develop, model and communicate their ideas through talking and drawing; **Make** • select from and use a range of tools and equipment to perform practical tasks (e.g., cutting and finishing); • select from and use a wide range of materials and components, including ingredients, according to their characteristics; **Evaluate** • explore and evaluate a range of existing products; • evaluate their ideas and products against design criteria; **Cooking and nutrition** • use the basic principles of a healthy and varied diet to prepare dishes; • understand where food comes from.	**1. Product, User, Purpose** To design, make and evaluate a fruit salad for Y2 children to eat on a class picnic. **Investigative & Evaluative Activities** Examine a wider range of fruit and vegetables than in Y1. (See Y1's questions). Smell and taste fruit and vegetables in order to describe them through talking and drawing. (See Y1's questions). Evaluate existing products to determine what the children like best; provide opportunities for the children to investigate preferences of their intended users/suitability for intended purposes. (See Y1's questions). **2. Focused Tasks** Revisit basic food hygiene practices (tying up hair, washing hands, wearing apron) and the importance of following instructions to control risk. Demonstrate how to use new utensils safely (peeler, juicer). Children practise skills from Y1 (washing, slicing) and new skills (grating, peeling, squeezing). (See Y1's questions). Discuss different effects achieved by different processes. Use *The Eatwell Guide* to talk about the importance of fruit and vegetables in a balanced diet: (See Y1's questions). (Link to PSHE). **3. Design** Ensure the children understand the product, user and purpose. Agree on class design criteria to guide the development and evaluation of the product. (See Y1's questions). Draw and annotate their ideas for their fruit salad. **4. Make** Discuss the main stages in making a fruit salad including the utensils and ingredients needed and the food preparation skills learned. Make the fruit salad choosing the utensils and ingredients. **5. Evaluate** Complete an evaluation of their finished fruit salad, evaluating it against the class design criteria.	product, user, purpose, design criteria, annotated drawing, plan, evaluate, fruit, vegetable, texture, appearance, flesh, skin, seed, pip, core, preference, hygiene, slice, peel, squeeze, utensil, knife, peeler, grater, juicer, chopping board, The Eatwell Guide, healthy diet, ingredients

St. Katharine's Primary School Design and Technology Progression Pathway Year 3

Y3 Textiles Bag	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Designer: Stella McCartney CBE **Prior Learning** Y1 Textiles: Finger Puppet **Resources (See DT folder)** DATA Textiles: Y1/2 – Templates and joining techniques; Y3/4 – 2d shape to 3d product	**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; • generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes and pattern pieces; **Make** • select from and use a wider range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing), accurately; • select from and use a wider range of materials and components, including textiles, 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.	**1. Product, User, Purpose** To design, make and evaluate a bag for a (specified relative) to carry a (specified object). **Investigative & Evaluative Activities** Investigate and evaluate existing bags which have a selection of fastenings, discussing changes since Roman times e.g. the invention of zips and Velcro. Disassemble appropriate products to gain an understanding of 3-D shape, patterns and seam allowances. Question to develop understanding: *What is its purpose? Which one is most suited to its purpose? What properties/characteristics does the fabric have? Why has this fabric been chosen? How has the fabric been joined together? How effective are its fastenings? How has it been decorated? Does its decoration have a purpose? What would the 2-D pattern piece look like? What are its measurements? How might you change the product?* Research the innovative bags of inspirational designer, Stella McCartney CBE, and her impact on fabrics and products as she is particularly known for her use of vegetarian and animal-free alternatives in her products. Girls Shoes & Bags | Trainers & Backpacks | Stella McCartney Kids UK **2. Focused Tasks** Provide a range of fabrics – children to consider whether fabrics are suitable for the chosen purpose and user. Revisit running stitch and overstitch; teach back stitch and cross stitch. Children practise sewing two small pieces of fabric together, demonstrating the use of, and need for, seam allowances. Use questioning to develop understanding e.g. *Which joining technique makes the strongest seam? Why? Which stitch is appropriate for the purpose? Which joining techniques are suitable for the fabric and purpose? How can you stiffen your fabric? What is the purpose of the fastenings? Which one is most suited to the purpose and user? What decorative techniques have been used? What effect do they have?* Learn how to create a paper pattern using 2-D shapes. **3. Design** Develop a class design criteria considering the intended user, purpose and appeal of their bag. Communicate their design ideas in annotated sketches and a mock-up. Encourage creative thinking. **4. Make** As a class, plan the main stages of making. Make the bag using existing knowledge, skills and understanding from IEAs and FTs; think about the aesthetics and quality of finish. Evaluate the bag against the class design criteria and make improvements. **5. Evaluate** Ask their user to test the bag before completing an evaluation, communicating how it matches the design criteria, any changes they made and their user's views.	product, user, purpose, design criteria, innovative, annotated sketch, mock-up, plan, evaluate, fabric, thread, running stitch, overstitch, back stitch, cross stitch, fastening, compartment, zip, Velcro, template, paper pattern, seam, seam allowance

St. Katharine's Primary School Design and Technology Progression Pathway Year 3

Y3 Cooking & Nutrition: Sandwich	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Chef: Max Halley **Prior Learning** Y1 Cooking & Nutrition: Fruit smoothie Y2 Cooking & Nutrition: Fruit salad **Resources (See DT folder)** DATA: Y3/4 Healthy and Varied Diet Celebrating culture and seasonality **Curriculum Links** Science: Teeth & Nutrition PSHE: Being My Best – Derek Cooks Dinner Computing: Writing a recipe: 1&3	**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 and communicate their ideas through discussion, annotated sketches and exploded diagrams **Make** • select from and use a wider range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing), accurately • select from and use a wider range of 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 **Cooking and nutrition** • 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.	**1. Product, User, Purpose** To design, make and evaluate a sandwich for Y3 children to eat at the Fantastic Finale. **Investigative & Evaluative Activities** Research the sandwich recipes of inspirational sandwich maker Max Halley Who is the sandwich maker on MasterChef and where is his shop? (realitytitbit.com). Taste and evaluate existing sandwiches and ingredients including different breads. Revisit the principles of a healthy diet focusing on the oil and spreads section of the Eatwell Guide (link to Science & PSHE). Research how ingredients are grown (wheat), reared (ham, eggs) and caught (tuna). **2. Focused Tasks** Revisit basic food hygiene and safety practices (tying up hair, washing hands, wearing apron, following instructions, using equipment safely, hob, boiling water). Discuss which ingredients could be added to a sandwich. Practise spreading margarine; cutting cucumber or tomatoes using the bridge and claw technique; grating carrots; boiling an egg; and mixing tuna or egg with mayonnaise. **3. Design** Develop a class design criteria considering their needs, wants and preferences as well as healthy eating. Communicate their design ideas for their sandwich in an annotated exploded diagram. **4. Make** Discuss the main stages in making a sandwich including the utensils and ingredients needed. (Link to computing: Writing a recipe.) Make the sandwich choosing the utensils and ingredients needed. Evaluate their sandwich against the class design criteria during the making stage and make improvements. **5. Evaluate** Write an evaluation of their finished sandwich, evaluating it against the class design criteria.	product, user, purpose, design criteria, annotated, exploded diagram, plan, evaluate, preferences, The Eatwell Guide, healthy diet, protein, starchy, carbohydrates, dairy, oil, spreads, hob, boil, spread, bridge & claw technique

St. Katharine's Primary School Design and Technology Progression Pathway Year 3

Y3 Structures: Sandwich Box	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Prior Learning Y2 Structures: House **Resources (See DT folder)** DATA: Y3 Shell structures Y1/2 Structures: Freestanding structures **Curriculum Links** Maths: 2-D nets & 3-D shapes Science: Properties of materials Computing: Writing a recipe: 3&4	**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, prototypes and computer-aided design; **Make** • select from and use a wider range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing), accurately; • select from and use a wider range of materials and components, including construction materials, 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 **Technical knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures	**1. Product, User, Purpose** To design, make and evaluate a container for themselves to carry their sandwich. **Investigative & Evaluative Activities** Investigate different shell structures including packaging. Question to develop understanding: *What is the purpose of the shell structure – protecting, containing, presenting? What material is it made from? How has it been constructed? Are the materials recyclable or reusable? How has it been stiffened i.e. folded, corrugated, ribbed, laminated? What size/shape/colour is it? What information does it show and why? How attractive is the design?* Disassemble to identify parts of a net including the tabs e.g. *How are different faces of the package arranged? How are the tabs used to join the 'free' edges of the net?* Evaluate to determine which designs are most suitable for their intended users and purposes. Discuss graphics including colours/impact of style/logo/size of font: *What do you prefer and why? What style of graphics and lettering might we want to include in our product to meet users' preferences and its intended purpose? Which packaging might be the best for…?* **2. Focused Tasks** Investigate making 3-D shapes from different 2-D nets using construction its or card and masking tape. Learn to score, cut out and assemble pre-drawn nets to construct a simple box. Add a window by cutting out and adding an acetate sheet. Learn to stiffen and strengthen by folding and shaping, corrugating, ribbing, laminating. Learn to use CAD software to design the net, text and graphics to achieve the desired appearance. **3. Design** Develop a class design criteria considering their intended user and purpose. Communicate their design ideas in annotated sketches and prototypes. **4. Make** As a class, plan the main stages of making, including identifying the tools and skills needed. Make the box focusing on accuracy and using CAD. **5. Evaluate** Test the box before completing an evaluation, communicating how it matches the design criteria, any changes they made and their user's views.	product, user, purpose, design criteria, innovative, annotated sketch, prototype, evaluate, shell structure, 2-D, 3-D, edge, face, length, width, height, marking out, scoring, shaping, tabs, adhesives, joining, assembling, stiffen, corrugating, ribbing, laminating, font, graphics adhesive tape, masking tape, acetate sheet, PVA glue

St. Katharine's Primary School Design and Technology Progression Pathway Year4

Y4 Electrical Systems: Torch	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Resources (See DT folder) DATA: Y4 Electrical Systems: Simple circuits and switches **Curriculum Links** Science: Electricity	**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 and computer-aided design; **Make** • select from and use a wider range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing), accurately; • select from and use a wider range of materials and components, including construction materials, 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** • understand and use electrical systems in their products e.g., series circuits incorporating switches and bulbs.	**2. Product, User, Purpose** To design, make and evaluate a torch for a specified adult to use during Bonfire Night. **Investigative & Evaluative Activities** Discuss, investigate and, where practical, disassemble different examples of relevant battery-powered products, including those which are commercially available e.g. *Where and why they are used? How does the product work? What are its key features and components? How does the switch work? Is the product manually controlled or controlled by a computer? What materials have been used and why? How is it suited to its intended user and purpose?* Investigate using switches (including push-to-make, push-to-break, toggle switch) in circuits. Remind children about the dangers of mains electricity. **2. Focused Tasks** In science lessons, make simple series circuits with batteries, switches, lamps and buzzers. Explain how to avoid making short circuits and that switches are input devices and lamps and buzzers are output devices. Make and test a variety of switches from card, corrugated plastic, aluminium foil, paper fasteners and paper clips. **3. Design** Develop a class design brief (torch, parents, Bonfire Night). Discuss the purpose of the torch they will be designing and making and who they are for. Ask the children to generate a range of ideas, encouraging realistic responses. Agree on design criteria that can be used to guide the development and evaluation of the torches, including safety features. Children develop, model and communicate their ideas using annotated cross-sectional and exploded diagrams. **4. Make** Ask the children to consider the main stages in making and testing before assembling high quality products, drawing on the knowledge, understanding and skills learnt through IEAs and FTs. **5. Evaluate** Write an evaluation of their finished product, evaluating it against the class design criteria.	product, user, purpose, function, design brief, design criteria, innovative, annotated sketch, cross-sectional diagram, exploded diagram, evaluate, series circuit, connection, toggle switch, push-to-make switch, push-to-break switch, cell, battery, battery holder, lamp, bulb, bulb holder, wire, insulator, conductor, crocodile clip, input device, output device

St. Katharine's Primary School Design and Technology Progression Pathway Year 4

Y4 Cooking & Nutrition: Soup	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Chef: Omari McQueen **Prior Learning** Y3 Cooking & Nutrition: Sandwich **Resources (See DT folder)** DATA: Y3/4 Healthy and Varied Diet Celebrating culture and seasonality **Curriculum Links** PSHE: Being My Best – Scarf Hotel	**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 and communicate their ideas through discussion and annotated sketches **Make** • select from and use a wider range of tools and equipment to perform practical tasks (e.g., cutting and finishing), accurately • select from and use a wider range of 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 **Cooking and nutrition** • 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.	**1. Product, User, Purpose** To design, make and evaluate soup for Y4 children to eat at the Fantastic Finale. **Investigative & Evaluative Activities** Research the soup recipes of inspirational CBBC chef Omari McQueen and how he has promoted healthy eating. Research and taste some existing soups and ingredients. Revisit the principles of a healthy diet focusing on the potatoes and carbohydrates section of the Eatwell Guide (link to PSHE). Research how ingredients are grown. **2. Focused Tasks** Revisit basic food hygiene and safety practices (tying up hair, washing hands, wearing apron, following instructions, using equipment safely, hob, boiling water). Practise peeling, chopping and slicing onions, potatoes and carrots. Follow a basic soup recipe learning to measure, stir and simmer ingredients. Discuss which ingredients could be added to the recipe. **3. Design** Develop a class design criteria considering their needs, wants and preferences as well as healthy eating. Communicate their design ideas for their soup in an annotated sketch. **4. Make** Ask the children to consider the main stages in making their soup before choosing appropriate equipment and utensils to peel, cut, and simmer ingredients. Evaluate their soup against their design criteria during the making stage and make improvements. **5. Evaluate** Write an evaluation of their finished soup, evaluating it against the class design criteria.	product, user, purpose, design criteria, annotated sketch, plan, evaluate, preferences, recipe, The Eatwell Guide, healthy diet, protein, starchy, carbohydrates, dairy, oil, spreads, hob, simmer, bridge & claw technique

St. Katharine's Primary School Design and Technology Progression Pathway Year 4

Y4 Mechanical Systems: Pop-up Book	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Prior Learning Y2 Mechanics: Sliders & Levers **Resources (See DT folder)** DATA: Y3/4 Mechanisms: Levers & Linkages DATA: Y1/2 Mechanisms: Sliders and Levers **Curriculum Links** Science: Forces	**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 and prototypes; **Make** • select from and use a wider range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing), accurately; • select from and use a wider range of materials and components, including construction materials, 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** • understand and use mechanical systems in their products (e.g., levers and linkages).	**1. Product, User, Purpose** To design, make and evaluate a moving page for a Y4 rainforest book. **Investigative & Evaluative Activities** Investigate, analyse and evaluate books and other products which have a range of lever and linkage mechanisms. Through questioning, develop children's understanding: *Who might it be for? What is its purpose? What do you think will move? How will you make it move? What part moved and how did it move? How do you think the mechanism works? What materials have been used? How effective do you think it is and why? What else could move?* **2. Focused Tasks** Demonstrate a range of lever and linkage mechanisms to the children using prepared teaching aids. Use questions to develop children's understanding: *Which card strip is the lever? Which card strip is acting as the linkage? Which part of the system is the input and which part the output? What does the type of movement remind you of? Which are the fixed pivots and which are the loose pivots?* Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. Children should develop their knowledge and skills by replicating one or more of the teaching aids using paper. **3. Design** Develop a design brief with the children within a context which is authentic and meaningful. Discuss the purpose of the products they will be designing and making and who the products will be for. Ask the children to generate a range of ideas, encouraging creative responses. Agree on a class design criteria that can be used to guide the development and evaluation of the children's products. Using annotated sketches and prototypes, ask the children to develop, model and communicate their ideas. **4. Make** Ask the children to consider the main stages in making before assembling high quality products, drawing on the knowledge, understanding and skills learnt through IEAs and FTs. **5. Evaluate** Write an evaluation of their finished product, evaluating it against the class design criteria.	product, user, purpose, design brief, design criteria, annotated sketch, prototype, plan, evaluate, innovative, appealing, assemble, masking tape, paper fastener, split pin, mechanism, slider, lever, linkage, fixed pivot, loose pivot, slot, bridge or guide, system, input, process, output

St. Katharine's Primary School Design and Technology Progression Pathway Year 5

Y5 Structures: Bird House	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Designer: Zaha Hadid **Prior Learning** Y3 Structures: Sandwich box **Resources (See DT folder)** Y5 Structures PowerPoint; Y5 Worksheets: To evaluate existing structures, To develop a design spec, To evaluate my product against my design spec, To read and spell DT vocabulary; DATA: Y5 Frame structures **Curriculum Links** Computing - CAD	**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 and computer-aided design **Make** • select from and use a wider range of tools and equipment to perform practical tasks (e.g., cutting, shaping, joining and finishing), accurately • select from and use a wider range of materials and components, including construction materials, 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	**1. Product, User, Purpose** To design, make and evaluate a bird house for birds to use during the breeding season. **Investigative & Evaluative Activities** Investigate and make annotated sketches of a range of portable and permanent frame structures around school, e.g., gazebo, bike shelter, picnic table, benches (see Structures ppt). Research the work of inspirational architect Zaha Hadid including the Arts University Bournemouth building. **2. Focused Tasks** Strengthen structures by triangulation using card strips and split pins. Join wood using PVA glue and cardboard triangles. Mark and cut square section soft wood safely using a tri-square, junior hacksaw, bench hook (jig), vice and g-clamp. **3. Design** Conduct own research (survey, questionnaires, interviews, online research) to ascertain the needs, wants and preferences of their target bird and the school community. Develop their own design specification. Make an annotated 3d sketch and prototype (using cheap materials, e.g., card, paper, glue stick) of their product. **4. Make** Write a step-by-step plan including a list of tools and materials. Choose appropriate tools to accurately measure, mark, cut and join materials. Use computer software to design aesthetically pleasing graphics for cladding. Evaluate their product against their design specification during the making stage and make improvements. **5. Evaluate** Evaluate their final product against their design specification considering the questions on the worksheet.	product, user, purpose, design specification, annotated sketch, prototype, step-by-step plan, evaluation, innovative, aesthetics, CAD (computer-aided design), frame structure, architect, triangulation, PVA glue, square section wood, soft wood (pine), balsa wood, tri-square, junior hacksaw, bench hook (jig), vice, G-clamp

St. Katharine's Primary School Design and Technology Progression Pathway Year 5

Y5 Textiles Beanbag Toy	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Designer: Philip Treacy OBE (hat designer) **Prior Learning** Y3 Textiles: Bag **Resources (See DT folder)** DATA Textiles: Y1/2 – Templates and joining techniques; Y3/4 – 2d shape to 3d product; Y5/6 – Combining different fabric shapes & Using CAD in textiles	**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 (cutting, shaping, joining and finishing), accurately; • select from and use a wider range of materials and components, including textiles, 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.	**1. Product, User, Purpose** To design, make and evaluate a beanbag fiddle toy for a younger child to use during lessons. **Investigative & Evaluative Activities** Investigate and evaluate a range of existing beanbag toys which have been produced by combining fabric shapes. Analyse how existing products have been constructed by disassembling a product and evaluating what the fabric shapes look like, how the parts have been joined, how the product has been strengthen and stiffened, what fastenings have been used and why. Investigate properties of textiles, e.g., exploring insulating properties, water resistance, wear and strength of textiles. Research the innovative work of inspirational Irish hat designer, Philip Treacy OBE, and his impact on fabrics and products. **2. Focused Tasks** Revisit: running stitch, overstitch and backstitch and teach blanket stitch. Develop skills of sewing textiles by joining right side together and making seams. Children should investigate how to sew and shape curved edges by snipping seams, how to tack or attach wadding or stiffening and learn how to start and finish off a row of stitches. Develop skills of 2-D paper pattern making using grid or tracing paper to create a 3-D dipryl mock-up of a chosen product. Remind/teach how to pin a pattern onto fabric ensuring limited wastage, how to leave a seam allowance and different cutting techniques. Develop skills of CAD by using on-line pattern making software to generate pattern pieces. **3. Design** Conduct own research (survey, interviews, online research) to ascertain the needs, wants and preferences of their target user. Write own design specification. Draw annotated sketches from different perspectives (and/or CAD) indicating design decisions, methods of strengthening, fabrics and stiches and make a mock-up. **Make** Write a step-by-step plan including tools, fabrics and components. Make a high-quality toy applying knowledge, understanding and skills from IEAs and FTs and using a range of decorating techniques to ensure a well-finished final product that matches the intended user and purpose. Evaluate their product against their design specification during the making stage and make improvements. **5. Evaluate** Evaluate their final product against their design specification considering the questions on the worksheet.	product, user, purpose, design specification, annotated sketch, perspective, mock-up, step-by-step plan, evaluation, innovative, aesthetics, CAD (computer-aided design), blanket stitch, seam allowance, wadding, reinforce, right / wrong side, hem, pattern pieces

St. Katharine's Primary School Design and Technology Progression Pathway Year 5

Y5 Cooking & Nutrition: Pizza	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Chef: Jamie Oliver **Prior Learning** Y4 Cooking & Nutrition: Soup **Resources (See DT folder)** Y5 Pizza PPt Y5 Worksheets: To evaluate existing products, To develop a design spec, To evaluate my product against my design spec, To read and spell DT vocabulary DATA: Y5/6 Celebrating culture and seasonality **Curriculum Links** Science: Digestion	**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 and communicate their ideas through discussion, annotated sketches and exploded diagrams and computer-aided design **Make** • select from and use a wider range of tools and equipment to perform practical tasks accurately • select from and use a wider range of 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 **Cooking and nutrition** • 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.	**1. Product, User, Purpose** To design, make and evaluate a pizza slice for Y5 children to eat during the Fantastic Finale. **Investigative & Evaluative Activities** Revisit the principles of a healthy diet focusing on the proteins section of the Eatwell Guide (link to science: digestion –saliva breaks down starch; hydrochloric acid digests protein). Learn about seasonality and research locally produced ingredients (sustainability) and how they are grown (tomatoes, herbs), reared (ham), caught (prawns, tuna) and processed (passata). Research the pizza recipes of inspirational chef Jamie Oliver and how he has promoted healthy eating. Taste some existing pizza toppings including oregano from the school garden. **2. Focused Tasks** Revisit basic food hygiene and safety practices (tying up hair, washing hands, wearing apron, following instructions, using equipment safely, hob, oven). Revisit peeling, chopping and slicing onions and grating cheese (use carrots for practising). Learn to simmer a basic tomato sauce. Follow a basic pizza recipe learning to measure, mix and knead ingredients. Explore making different shaped pizza bases and discuss which is most aesthetically appealing. Discuss which ingredients in the recipe could be substituted. **3. Design** Conduct own research (survey, interviews, online research) to ascertain the needs, wants and preferences of their target user. Write own design specification. Communicate their design ideas in an annotated exploded sketch using computer software considering how to make their pizza aesthetically appealing and healthy. **4. Make** Write a step-by-step plan including a list of equipment, utensils and ingredients. Make their pizza choosing appropriate equipment and utensils to accurately measure, mix, knead, simmer, cut and bake it. Evaluate their pizza against their design specification during the making stage and make improvements. **5. Evaluate** Write an evaluation of their finished pizza, evaluating it against their design specification considering the questions on the worksheet.	product, user, purpose, design specification, annotated exploded diagram, step-by-step plan, evaluation, aesthetics, CAD (computer-aided design), The Eatwell Guide, protein, starchy carbohydrates, dairy, seasonality, sustainability, locally produced, processed, ingredients, utensils, simmer, knead, dough, recipe, substitute

St. Katharine's Primary School Design and Technology Progression Pathway Year 6

Y6 Food & Nutrition: Savoury Scones	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Chef: Nadiya Hussain **Prior Learning** Y5 Cooking & Nutrition: Pizza **Resources (See DT folder)** Y5 Pizza PPt Y5 Worksheets (Word doc): To evaluate existing products, To develop a design spec, To evaluate my product against my design spec, To read and spell DT vocabulary DATA: Y5/6 Celebrating culture and seasonality **Curriculum Links** Science: Humans – Impact of diet	**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 and communicate their ideas through discussion, annotated sketches and exploded diagrams and computer-aided design **Make** • select from and use a wider range of tools and equipment to perform practical tasks accurately • select from and use a wider range of 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 **Cooking and nutrition** • 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.	**1. Product, User, Purpose** To design, make and evaluate a savoury scone for Y6 children to eat at a Christmas party. **Investigative & Evaluative Activities** Revisit the principles of a healthy diet focusing on the dairy and alternatives section of the Eatwell Guide (link to Science: Y5 Digestion – bile digests fat; Y6 Healthy diet). Learn about seasonality and research locally produced ingredients (sustainability) and how they are grown (wheat), reared (ham), caught and processed (butter, cheese). Research the recipes of inspirational chef Nadiya Hussain including for savoury parmesan scones. Research and / or taste some existing savoury scones or ingredients. **2. Focused Tasks** Revisit basic food hygiene and safety practices (tying up hair, washing hands, wearing apron, following instructions, using equipment safely, hob, oven). Follow a basic scone recipe learning to measure, mix, rub in, knead, shape and bake ingredients. Explore making different shaped scones and discuss which is most aesthetically appealing. Discuss which ingredients in the recipe could be substituted. Easy Cheese Scones - Apply to Face Blog **3. Design** Conduct own research (survey, questionnaires, interviews, online research) to ascertain the needs, wants and preferences of their target user. Use their findings and their knowledge of healthy eating to develop their own design specification. Communicate their design ideas in an annotated sketch using computer software considering how to make their scone aesthetically appealing. **4. Make** Write a step-by-step plan including a list of equipment, utensils and ingredients. Make their scone choosing appropriate equipment and utensils to accurately measure, mix, cut, shape and bake it. Evaluate their scone against their design specification during the making stage and make improvements. **5. Evaluate** Write an evaluation of their finished scone, evaluating it against their design specification considering the questions on the worksheet.	product, user, purpose, design specification, annotated sketch, step-by-step plan, evaluation, aesthetics, CAD (computer-aided design), The Eatwell Guide, dairy, protein, starchy carbohydrates, seasonality, sustainability, locally produced, processed, ingredients, utensils, savoury, rub in, dough, substitute

St. Katharine's Primary School Design and Technology Progression Pathway Year 6

Y6 Mechanical Systems: Car	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Inventor: Robert Anderson **Prior Learning** Y5 Structures: Tent Y1 Mechanics: Emergency Vehicle **Resources (See DT folder)** Y6 Electric Car PPT DATA: Y6 Mechanical Systems: Pulleys or Gears **Curriculum Links** Science: Y6 Forces – Levers, Pulleys & Gears	**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 and computer-aided design **Make** • select from and use a wider range of tools and equipment to perform practical tasks accurately • select from and use a wider range of materials and components, including construction materials, 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.	**1. Product, User, Purpose** To design, make and evaluate an electric car to race during their FFinale. **Investigative & Evaluative Activities** (See Electric Car Ppt.) Investigate and make annotated sketches of a range of products (existing or pre-made / videos or photographs) that incorporate gear or pulley systems. Research the importance of Scottish inventor, Robert Anderson. **2. Focused Tasks (link to science)** In science lessons, investigate pulleys and gears. Revisit and develop measuring, marking, cutting, shaping and joining skills from Y5 using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames. **3. Design** Develop an authentic and meaningful design brief with the children. Conduct own research (survey, questionnaires, interviews, online research) to ascertain the needs, wants and preferences of their target user. Use their findings to develop their own design specification. Communicate ideas through detailed, annotated drawings from different views and/or exploded diagrams. The drawings should indicate the design decisions made, including the location of the mechanical and electrical components, how they work as a system with an input, process and output, and the appearance and finishing techniques for the product. **4. Make** Write a step-by-step plan including a list of tools and materials. Choose appropriate tools to accurately measure, mark, cut and join materials. Use computer software to design aesthetically pleasing graphics. Evaluate their car against their design specification during the making stage and make improvements. **5. Evaluate** Critically evaluate the car in use, comparing it to the original design specification and considering the quality of the design, the manufacture, functionality, innovation shown and fitness for the intended user and purpose.	product, user, purpose, design specification, annotated sketch, exploded diagram, step-by-step plan, evaluation, innovative, aesthetics, CAD (computer-aided design), frame structure, triangulation, PVA glue, square section wood, Junior hacksaw, bench hook (jig), vice, G-clamp, pulley, gear, drive belt, gearing up or down, mechanical system, driver, mesh, follower, motor spindle

St. Katharine's Primary School Design and Technology Progression Pathway Year 6

Y6 Electrical Systems: Electric car	**Curriculum Content**	**Knowledge/Skills**	**Vocabulary**
Inspirational Inventor: Jack Kilby & Robert Noyce **Prior Learning** Y4 Electrical Systems: Torch **Resources (See DT folder)** Y6 Electric Car PPT DATA: Y6 Electrical Systems: More complex switches and circuits DATA: Y6 Electrical Systems: Monitoring and control **Curriculum Links** Science: Y5 Electricity Computing – Control (Micro:bit)	**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 and computer-aided design; **Make** • select from and use a wider range of tools and equipment to perform practical tasks; • select from and use a wider range of materials and components; **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** • understand and use electrical systems in their products and apply their understanding of computing to program, monitor and control their products.	**1. Product, User, Purpose** To design, make and evaluate an electric car to race during their Fantastic Finale. **Investigative & Evaluative Activities** (See Electric Car Ppt.) Investigate and make annotated sketches of a Micro:bit buggy. Investigate sensors such as light dependent resistors (LDRs) and a range of switches (push-to-make, push-to-break, toggle, micro, reed). Research the invention of microchip technology including Jack Kilby and Robert Noyce. **2. Focused Tasks** Build working circuits that incorporates a battery, a motor and a handmade switch. Using a model circuit, children practise using different input and output devices. Use BBC Micro:bit to write, modify and test programs to control a Micro:bit buggy. **3. Design** Develop an authentic and meaningful design brief with the children. Conduct own research (survey, questionnaires, interviews, online research) to ascertain the needs, wants and preferences of their target user. Use their findings to develop their own design specification. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams, including the Micro:bit. Drawings should indicate the design decisions made, including the location of the electrical components and how they work as a system with an input, process and output. Reference should be made to the Micro:bit program used and how it will operate to control the inputs and outputs. **4. Make** Write a step-by-step plan including a list of tools, equipment and materials. Make and fit the electric circuit into the car. Create and modify a computer control program to control the car. **5. Evaluate** Critically evaluate the final product in use, comparing it to the original design specification. Test the system to demonstrate its effectiveness for the intended user and purpose.	product, user, purpose, design specification, annotated sketch, step-by-step plan, evaluation, CAD (computer-aided design), electrical system, series circuit, connection, switch, toggle, push-to-make /break, cell, battery, battery holder, lamp, bulb, bulb holder, wire, insulator, conductor, crocodile clip, input device, output device, control, program