

St. Mary's and St. Benedict's RC Primary Curriculum Map - Design Technology

National Curriculum KS1 Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

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

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

Cooking and Nutrition

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

Cycle A KS1		
Mechanisms: Matching Slider Game (Great Fire of London)	Food: Preparing and combining food – Smoothies	Structures: Stability and strength – designing and building models for a purpose – windmill
Key skills: • Thinking about what others might want from a design. • Beginning to recognise how products and designs in the world around us solve certain needs. • Considering who they are designing for – by identifying the user. • Stating what they intend to make and why – by identifying the purpose. • Talking about ideas with purpose and user in mind. • Talking about existing products when generating ideas. • Creating mock-ups to communicate designs. • Planning more than one step ahead. • Choosing between a small number of materials, ingredients or components. • Explaining their choices based on personal experiences. • Requesting equipment appropriate to the purpose. (e.g. scissors for cutting, glue for joining). • Explaining in simple terms why certain tools must be handled carefully. • Following and recalling simple safety instructions. • Beginning to use objects with a fixed width or length to create even spacing of markings or cuts. (e.g. a lolly stick). • Refining their grip to cut competently and confidently. • Cutting straight lines and evenly spaced lines. • Beginning to cut large shapes and thicker materials like card. • Puncturing holes.	Key Skills: • Designing smoothie carton packaging by hand. • Suggesting information to be included on packaging • Chopping fruit and vegetables safely to make a smoothie. • Juicing fruits to make a smoothie. • Identifying if a food is a fruit. • Learning where and how fruits and vegetables grow. • Tasting and evaluating different foods. • Describing appearance, smell and taste.	Key skills: • Finding the middle of an object. • Puncturing holes. • Adding weight to a structure. • Creating supporting structures. • Cutting evenly and carefully. • Evaluating and improving a product.

● Applying masking tape to fix something in place or join to edges. ● Using tools, like scissors, to create shapes. ● Beginning to cut large shapes and thicker materials like card. ● Discussing existing products, saying what they like about them. ● Discussing how their products could be improved based on personal preferences. ● Saying what they like about their peers' designs and products. ● Accepting feedback and understanding it is meant to improve their work.		
Key knowledge: To know: ● Recognising and exploring everyday objects that have mechanisms. ● Recognising everyday objects that use a slider mechanism (e.g. drawers, sliding doors, paper trimmer).	Key knowledge: To know: ● That a blender is a machine which mixes ingredients together into a smooth liquid. ● That a fruit has seeds and a vegetable does not. ● That fruits grow on trees or vines. ● That vegetables can grow either above or below ground. ● That vegetables are any edible part of a plant.	Key knowledge: To know: ● That the sails or blades of a windmill are moved by the wind. ● That windmills are used to generate power and were used for grinding flour. ● That a structure is something built for a reason. ● That stable structures do not topple. ● That adding weight to the base of a structure can make it more stable.
Key vocab: Adapt, assemble, design criteria, input, mechanism, model, sliders, lever, pivot, product	Key vocab: Design (r), evaluate, flavour, healthy, ingredients, juice, juicer, recipe, smoothie, vine, product (r)	Key vocab: Base, centre, design (r), middle, rotate, rotor, blades, sails, stable, strong, structure, free standing structure, product (r)
Resources Masking tape, Card (A4 - white), Card (A4 – assorted colours), cellotape	Resources Assortment of fruits e.g., strawberries, bananas, oranges. Orange juice, straws, disposable cups.	Resources: paper cups (small), paper cups (large), modelling dough, paper straws, 3mm wooden dowel (alternative – cocktail sticks)

<u>Cycle B</u> <u>KS1</u>		
Mechanisms: Fairground Wheel	Food: The Eat Well Guide, where food comes from, principles of a healthy diet (a healthy wrap) y2	Textiles: using a template, simple joining, choice of stitches, choice of materials (puppets/pouches)
Key skills: ● Conducting simple surveys or discussions to gather opinions on what others need or like in a design. ● Knowing that a survey is used to find out what people like. ● Using a simple design brief that outlines the intended use, target user, and key features of the product, to create simple design criteria. ● Knowing that a design brief helps to decide what to make. ● Knowing that design criteria are the steps for making a product successful. ● Creating ideas with design criteria in mind. ● Referring to specific parts of existing products when generating ideas. ● Knowing that the design criteria help when thinking of ideas. ● Using labels to explain parts of a design, label materials, etc. ● Using labels to explain parts of a design, label materials, etc. ● Knowing that drawings can help explain how something works. ● Knowing that a label explains part of a drawing. ● Choosing materials, ingredients or components from a wider range of materials, ingredients or components. ● Explaining their choices based on the properties of materials and components.	● Designing three wrap ideas. ● Chopping foods safely to make a wrap. ● Grating foods to make a wrap. ● Snipping smaller foods instead of cutting. ● Spreading soft foods to make a wrap. ● Identifying the five food groups. ● Learning about a balanced diet. ● Tasting and evaluating different food combinations. ● Describing appearance, smell and taste. ● Describing the information that should be included on a label.	● Using a template to create a design for a puppet. ● Cutting fabric neatly with scissors. ● Using joining methods to decorate a puppet. ● Sequencing steps for construction. ● Reflecting on a finished product, explaining likes and dislikes.

● Knowing some properties of materials like hard, soft, flexible, waterproof, strong etc. ● Following and recalling simple safety instructions. ● Knowing that some tools are sharp like scissors and knives. ● Choosing known geometric shapes when making. ● Beginning to shape objects to improve how they work. ● Knowing the names of some geometric shapes: triangle, pyramid, square, cube, circle, sphere. ● Considering balance in their finishing, like evenly spaced decoration. ● Discussing a range of existing products and saying what they like and dislike about them. ● Evaluating existing products against design criteria. ● Evaluating their ideas and creations against simple design criteria. ● Knowing that design criteria help to decide if their product is a success. ● Suggesting improvements to their peers' designs and products. ● Knowing that improve means to make something better. ● Knowing that their suggestions can improve someone else's work.		
<u>Key knowledge:</u> <u>To know:</u> ● Many things that move have parts inside to help them work. ● Mechanisms usually limit unwanted movement. ● An axle allows the wheel to turn without falling off.	<u>Key knowledge:</u> <u>To know:</u> ● That 'diet' means the food and drink that a person or animal usually eats. ● What makes a balanced diet. ● That the five main food groups are: carbohydrates, fruits and vegetables, protein, dairy and oils and spreads. ● That I should eat a range of different foods from each food group, and roughly how much of each food group.	<u>Key knowledge:</u> ● To know that 'joining technique' means connecting two pieces of material together. ● To know that there are various temporary methods of joining fabric by using staples, glue or pins. ● To understand that different techniques for joining materials can be used for different purposes. ● To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.

	• That 'ingredients' means the items in a mixture or recipe. • How to cut, grate, snip and spread to prepare foods. • How to review and give a score to evaluate.	• To know that drawing a design idea is useful to see how an idea will look.
Key vocab: axle, axel holder, design (r), mechanism (r), movement, product, tool, user, wheel	Key vocab: Appearance, balanced diet, carbohydrates, dairy, design (r), design brief (r), evaluate, grate, grater, ingredients (r), menu, oils, proteins, spreads, eat well guide, varied diet	Key vocab: Decorate, design (r), fabric, model, hand puppet, safety pin, staple, stencil, template, applique, cross-stitch, patch, running stitch, seam, thread
<u>Resources</u> Small plain paper plates, modelling dough, paper straws, large milk bottles, paper fasteners slash spit split pins card (A3 coloured)	<u>Resources</u> Peppers, avocado, boiled egg, Cheese, cucumber, coriander, parsley, spring onions, mayonnaise, hummus cream cheese, plastic spoons, cocktail sticks, wraps (See planning for when each ingredient is needed and how often e.g. tasting session, making session)	<u>Resources</u> Plastic sewing needles, cotton thread, felt squares, safety pins, needle threading tool, symbols, hook and loop adhesive dots, Materials to decorate the pouch
National Curriculum KS2 Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].		
<u>Design</u> • 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 <u>Make</u> • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <u>Evaluate</u> • 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 <u>Technical knowledge</u> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures		

- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

Cooking and nutrition

- 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.

Cycle A LKS2

Food: Simple Dish, The Eat Well Guide (seasonal tart)	Mechanical Systems: Levers and linkages (Pneumatic toys)	Structures: shell/frame structures and strengthening (castle)
Key individual: Louis Pasteur (Pasturisation)	Mary Anderson (invented the windscreen wiper)	Zaha Hadid (shell structures)
Key skills: • Describing how climate affects where foods grow. • Identifying seasonal ingredients from the UK. • Following the instructions within a recipe. • Tasting seasonal ingredients. • Peeling foods by hand or with a peeler. • Cutting ingredients safely. • Choosing ingredients based on a design brief. • Describing the texture and flavour of ingredients. • Describing the benefits of seasonal fruits and vegetables and their impact on the environment.	Key skills: • Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences. • Taking part in structured idea blasting sessions. • Coming up with more ideas and considering the feasibility of their ideas in the classroom. • Developing drawing and sketching skills with a focus on clarity and simplicity. • Developing designs by adding detail and justifications about materials, tools, methods. • Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. (e.g. sketches, cross-sectional diagram, thumbnail sketches and exploded diagrams). • Selecting equipment required for a series of tasks based on the plan. Explain why each piece is suitable for each stage.	Key Skills • Designing a castle with key features to appeal to a specific person/purpose. • Drawing and labelling a castle design using 2D shapes. • Designing and/or decorating a castle tower on CAD software. • Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials. • Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs.

	● Suggesting simple safety rules based on their understanding of tool dangers. ● Participating in discussions about classroom safety procedures. ● Cutting out more complex shapes accurately. ● Handle different sizes and types of scissors with confidence. ● Using PVA glue to join corrugated card and light wood (e.g. balsa wood). ● Choosing shapes to suit the function of a product. ● Painting or colouring precisely to improve the finish. ● Making facades from a range of materials. ● Sealing edges with tape to cover gaps in joins. ● Analysing why specific products, designers or inventors are successful. ● Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements. ● Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. ● Reflecting on feedback to decide if and how it could be used to improve future iterations.	
● Key knowledge: ● That seasonal means foods that grow in a given season in a given country. ● Some seasonal foods that grow in the UK and what season they grow in. ● That eating seasonal foods can have a positive impact on the environment. ● How to describe the flavour and texture of foods. ● How to cut and peel safely. ● That the appearance of food is as important as taste. ● That similar coloured fruits and vegetables often have similar nutritional benefits.	Key knowledge ● Beginning to understand how mechanisms work. ● Recognising pneumatic systems in everyday objects (e.g. car boot, adjustable chair.)	Key knowledge ● To understand that wide and flat based objects are more stable. ● To understand the importance of strength and stiffness in structures.

Key vocab: appearance (r), complementary, design (r), evaluate, ingredients (r), mock up, prototype, seasonal, texture, tart, processed food.	Key vocab: Input, mechanism (r), pneumatic system, mechanical system, cross sectional diagram, exploded diagram, evaluate (r), housing, linkage, pivot (r)	Key vocab 2D, 3D, design (r), key features, scoring, shape, stable, structure (r), tab, shell structure, frame structure
Resources Asparagus, pickled beetroot, radishes, Peppers, potatoes new potatoes, cucumber, avocados, grapes, bananas, apples, plastic knives, cabbage, spinach, spring onion, cauliflower, potatoes, cucumber, radishes, asparagus, cheddar cheese, tomato puree, pesto, paper plates, ready rolled puff pastry, mushrooms, cherry tomatoes, tomato puree, rocket, basil, olive oil, (See planning for when each ingredient is needed and how often e.g. tasting session, making session)	Resources Pull or balloon pump, balloons, a few books, a box with a hinged lid, sticky tape, plastic syringes, mild disinfectant, plastic tubing, bottles, split pins, A4 card, A4 card coloured, stuffing open brackets wool close brackets, buttons, pipe cleaners	Resources Various 2D and 3D shapes, card (A3 coloured), card (A4 white card) colour, paper, empty card packaging tubes and boxes, masking tape, blu tack, string,
Cycle B LKS2		
Programming, monitoring control and electrical systems (Torches) Micro:bits – creating a step counter and a nightlight (see Purple Mash Year 4 – Micro:bits - LO 1 and 2 only)	Textiles: - seams, stiffening and strengthening, materials and fastenings (book cover)	Food: simple savoury food and cooking techniques (savoury biscuits)
Key individual: Ann Makosinski (Young inventor of the hollow flashlight)	Key Individual- Alice Kettle (contemporary textile/fibre artist)	Key individual: Dr Marie Maynard Daly (research on fatty foods)
Key skills: • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. • Making a troch with an electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a troch according to the design and success criteria. • Evaluating electrical products.	Key Skills: • Writing design criteria for a product, articulating decisions made. • Designing a personalised book sleeve. • Making and testing a paper template with accuracy and in keeping with the design criteria. • Measuring, marking and cutting fabric using a paper template. • Selecting a stitch style to join fabric. • Working neatly by sewing small, straight stitches. • Incorporating a fastening to a design. • Testing and evaluating an end product against the	Key Skills: • Describing how climate affects where foods grow. • Identifying seasonal ingredients from the UK. • Tasting seasonal ingredients. • Describing the texture and flavour of ingredients. • Peeling foods by hand or with a peeler. • Cutting ingredients safely. • Choosing ingredients based on a design brief. • Following the instructions within a recipe.

• Testing and evaluating the success of a final product. • To code a micro:bit to make it work as a step counter. • To code a micro:bit to make a light switch that switches on or off when the light level changes.	original design criteria. • Deciding how many of the criteria should be met for the product to be considered successful. • Suggesting modifications for improvement. • Articulating the advantages and disadvantages of different fastening types.	• Describing the benefits of seasonal fruits and vegetables and their impact on the environment.
Key knowledge: • Electrical conductors are materials which electricity can pass through. • Electrical insulators are materials which electricity cannot pass through. • A battery contains stored electricity that can be used to power products. • An electrical circuit must be complete for electricity to flow. • A switch can be used to complete and break an electrical circuit.	Key Knowledge: • To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro. • To know that different fastening types are useful for different purposes. • To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.	Key knowledge: • To know that seasonal means foods that grow in a given season in a given country. • To know some seasonal foods that grow in the UK and what season they grow in. • To know that eating seasonal foods can have a positive impact on the environment. • To know how to describe the flavour and texture of foods. • To know how to cut and peel safely. • To know that the appearance of food is as important as taste. • To know that similar coloured fruits and vegetables often have similar nutritional benefits.
Key vocab: Battery, bulb, buzzer, circuit, diagram, component, conductor, (Link to science), electrical item, electricity, electronic item, insulator, series circuit, switch,, target audience, annotated sketch, accelerometer, data, gestures, If statement, infinite loop, If/Else statement, light sensor, logic, selection, sensor, simulation, variable	Key vocab: Criteria (r), fabric (r), fastening, prototype(r), stitches, template (r) pattern pieces	Key Vocab: Budget, construct, cuboid, hygiene (r), ingredients (r), market research (r), target audience (r), processed food (r)
Resources 3 crocodile wires/Leeds, MES button bulb, MES button bulb holder, screwdriver, PSO buzzer, paper fasteners paper clips, A4 white card, sticky tape, recycled empty drinks bottles, tinfoil Free code micro:bit, micro:bit	Resources Plastic sewing needles, cotton thread, felt squares, safety pins, needle threading tool, symbols, hook and loop adhesive dots, Materials to decorate the pouch	Resources Basic biscuit recipe, butter, Castor sugar, egg, vanilla extract, plain flour, Cocoa powder, chocolate chips, porridge oats, honey, mini marshmallows, raisins, desiccated coconut, dried fruit, cinnamon, orange or lemon (for zest), sprinkles, chocolate, icing, assortment of biscuits, A3 card, (See planning for when each ingredient is needed and how often e.g. tasting session, making session)

Cycle A UKS2		
Food: Food from another culture, variety of cooking techniques	Mechanical Systems: cams, pulleys and gears (Automata toys)	3D textiles: Designing bags, using patterns, joining with seam allowance, combining fabrics
Key Individual: Michael Caines (chef)	Key individual: James Dyson	Key Individual: Althea McNish (textile designer)
Key skills: • Researching existing recipes. • Suggesting alternative ingredients. • Designing a jar label. • Writing an alternative recipe. • Understanding cross-contamination. • Using preparation skills. • Making a developed recipe. • Explaining the farm-to-fork process. • Analysing nutritional content.	Key skills • Noticing wider-reaching problems or needs in the community. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. • Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design. • Producing lists of equipment, materials and tools that they need for a task. • Selecting materials, components or ingredients based on research or user needs. • Explaining their choices, referring to their research. • Considering which equipment will work well together. • Choosing from the known range of equipment available to them with little guidance. • Assessing risks associated with different tools and equipment. • Understanding and explaining each safety rule's importance. • Consistently apply safety instructions. • Cutting jelutong or other harder wood with a coping saw or a tenon saw in small groups. • Cutting in a back-and-forth sawing motion where appropriate. • In supervised groups, using hot glue guns safely.	Key skills • Creating more complex design criteria that require considering detailed user needs, environmental impact, materials and cost. • Developing more independence in generating ideas. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. • Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design. • Beginning to select methods to communicate their ideas, justifying their choices. (eg. prototypes, cross-sectional, exploded diagrams, CAD etc). • Assessing risks associated with different tools and equipment. • Understanding and explaining the importance of each safety rule. • Consistently apply safety instructions. • Using a ruler to accurately measure and draw lines and marks. • Select appropriate scissors to handle delicate cutting tasks and challenging materials. • Cutting patterns and drawings accurately.

	● Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly. ● Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. ● Providing feedback that is helpful, specific and encouraging. ● Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had.	● Choosing PVA glue over hot glue for safety when joining materials in less intensive projects. ● Balancing aesthetics and functionality when creating parts of a design. ● Using nets to create 3D objects. ● Considering when best to apply finishing effects. ● Reflecting on the usability, aesthetics, innovation and sustainability of products and discussing how design choices impact these aspects. ● Evaluating the work of a range of designers to help inform their designs. ● Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. ● Considering alternative materials, tools or techniques that could enhance the product.
Key knowledge: ● That beef comes from cows reared on farms. ● That recipes can be adapted to suit nutritional needs and dietary requirements. ● That nutritional information is found on food packaging. ● That coloured chopping boards can prevent cross-contamination. ● That food packaging serves many purposes.	Key Knowledge: ● To know that the mechanism in an automata uses a system of cams, axles and followers. ● To know that different shaped cams produce different outputs. ● To know which mechanisms are working together to make a mechanical system. ● To know that there are different directions of movement. ● To know that mechanisms can change one type of movement to another.	Key knowledge: ● Threading needles independently. ● Beginning to follow simple patterns or templates that require accurate cutting or measuring. ● Using pins effectively to secure a template to fabric without creases or bulges. ● Attaching objects like buttons using thread. ● Tying strong knots.
Key vocab: abattoir, brand, cross-contamination, hygiene (r), nutrient, nutrition, nutritional value, reared, processed food (r)	Key vocab: axle (r), gear, gear system, input (r), market research (r), mechanical system (r), output (r), pulley, pulley system, sustainability, cam, follower, mesh, meshing, exploded diagram, cross-sectional diagram	Key vocab: Innovative, pattern piece, seam allowance, seam, net, blanket stitch, fabric, running stitch (r), fabric (r), cross stitch, properties, prototype (r), user, aesthetic, functionality
Resources Bolognese sauce jar (500g) Onion	Resources Thick card (A5), Extra long split pins Paper fasteners/split pins	Resources Fabric (old duvet covers, t-shirts charity shops etc.) or Calico fabric sheets (A4)

Celery Garlic (bulb) Carrots Olive oil Chopped tomatoes (400g) Ingredients for spaghetti bolognese: - (4 servings) How many servings of 4, spaghetti bolognese do you wish to make? Tagliatelle/spaghetti pasta (500g) Beef mince (20% fat, 500g) Chopped tomatoes (400g) Garlic (bulb) Olive oil (250ml) Carrots Beef stock cubes (100g) (See planning for when each ingredient is needed and how often e.g. tasting session, making session)	Single-faced corrugated cardboard (600mm x 5m) Corrugated card sheets (A4) Modelling dough Paper clips Fabric pins/map tacks (assorted colours) Toothpicks Masking tape roll (50m) Cotton thread (embroidery thread - assorted) Plastic sewing machine bobbins Post-it note sheets Heavy books A ball	Dipryl Seam ripper Fabric pins/map tacks (assorted colours) Sewing needles Fabric glue Glue spreaders Needle threading tool Cotton thread (embroidery thread - assorted) Buttons (12 - 20mm assorted) Scrap fabric pieces or Fabric offcuts (250g) Tote bags
Cycle B UKS2		
Food: chefs, food heroes, designing a healthy menu/eat well plate	Structures: Playgrounds	Electrical Systems: Steady Hand game
Key Individual: Constance Spry (Inventor of Coronation chicken)	Key Individual: Fazlar Rahman Kahn	Key Individual: Ada Lovelace (Computer programmer)
Key skills: • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken. • Following a recipe, including using the correct quantities of each ingredient. • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence. • Evaluating a recipe, considering: taste, smell, texture and origin of the food group.	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs. • Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures. • Improving a design plan based on peer evaluation.	• Designing a steady hand game, identifying and naming the components required. • Drawing a design from three different perspectives. • Generating ideas through sketching and discussion. • Modelling ideas through prototypes. • Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. • Constructing a stable base for a game. • Accurately cutting, folding and assembling a net.

• Taste testing and scoring final products. • Suggesting and writing up points of improvements in productions. • Evaluating health and safety in production to minimise cross contamination.	• Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure.	• Decorating the base of the game to a high-quality finish. • Making and testing a circuit. • Incorporating a circuit into a base. • Testing their own and others' finished games, identifying what went well and making suggestions for improvement. • Gathering images and information about existing children's toys. • Analysing a selection of existing children's toys.
Key knowledge: • To know that 'flavour' is how a food or drink tastes. • To know that many countries have 'national dishes' which are recipes associated with that country. • To know that 'processed food' means food that has been put through multiple changes in a factory. • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).	Key knowledge: • To know that structures can be strengthened by manipulating materials and shapes. • To understand what a 'footprint plan' is. • To understand that in the real world, design, can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea.	Key knowledge: • To know that 'form' means the shape and appearance of an object. • To know the difference between 'form' and 'function'. • To understand that 'fit for purpose' means that a product works how it should and is easy to use. • To know that 'form over purpose' means that a product looks good but does not work very well. • To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. • To understand the diagram perspectives 'top view', 'side view' and 'back'.
Key vocab: Balanced diet (r), bridge method, complement, cross-contamination, farm to fork, pairing, umami, processed food (r), reared (r)	Key vocab: Apparatus, design criteria (r), equipment, playground, landscape features, cladding	Key vocab: Circuit (r), circuit symbol (r), conductor (r), copper, form and function, insulator (r), LED
Resources Key ingredients required for the recipes, pupils research and create: Bell peppers Salmon fillets Tinned pineapple (425 g)	Resources Paper (A4 - white) Card (A3 - white) Card (A4 - coloured) Materials to create apparatus with could include:	Resources Range of children's toys to support product analysis Black marker (non-permanent) Battery (AA/AAA - 1.5v) Double-battery holder with a red and black lead (AA/AAA)

Cookbooks and/or printed recipes Other ingredients pupils decide upon	Recycled packaging (egg cartons, tubes) and other reusable materials (corrugated card, newspaper) Lollipop sticks Wood square rod 10mm x 10mm - (600mm length) or Wood square rod 5mm x 5mm - (600mm length) Paper straws Pipe cleaners Foil roll (20m x 280mm) String (250g - 300m)	Tinned copper wire (20m) Crocodile wires/leads (0.5m) Switch - Electronic component Piezo buzzer (3v) - Electronic component Science MES Batten bulb 1.5v Science MES Batten bulb holder Sticky tack pack
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