



D & T Knowledge and Skills Progression

EYFS Framework					
ELG: Fine Motor Skills Use a range of small tools, including scissors, paintbrushes and cutlery. Expressive Arts and Design ELG: Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.					
National Curriculum					
<u>Purpose of Study</u> Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation..					
	Designing	Making	Evaluating	Technical Knowledge	Food Technology
KS1	Design - purposeful, functional, appealing products for themselves and other users based on design criteria. Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.	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.	Explore and evaluate a range of existing products evaluate their ideas and products against design criteria.	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.	Use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from
KS2	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, crossectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	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 wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	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.	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.	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

Reception				
ELG: Fine Motor Skills Use a range of small tools, including scissors, paint brushes and cutlery. Expressive Arts and Design ELG: Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the processes they have used.	Term	Autumn	Spring- Structures- Recyclable Model	Summer-Cooking & Nutrition
	Key Knowledge	Textiles- Sewing a Christmas Stocking To know that a design is a way of planning our idea before we start. To know that threading is putting one material through an object.	- To know there are a range to different materials that can be used to make a model and that they are all slightly different. - Making simple suggestions to fix their junk model.	To know that food is ingredients - To know that some foods are grown - To recognise and name some common fruit and vegetables. - To know that different fruit and vegetables taste different. - To know that eating fruit and vegetables is good for us
	Key Skills	<u>Design</u> Discussing what a good design needs. - Choosing from available materials <u>Make</u> - Developing fine motor/cutting skills with scissors. - Exploring fine motor/threading - Using a prepared needle and wool to practise threading. <u>Evaluate</u> - Reflecting on a finished product	<u>Design</u> - Making verbal plans and material choices. - Developing a junk model. <u>Make</u> Improving fine motor/scissor skills with a variety of materials. - Joining materials in a variety of ways (temporary and permanent). - Joining different materials together. - Describing their junk model, and how they intend to put it together <u>Evaluate</u> Giving a verbal evaluation of their own and others' junk models with adult support. - Checking to see if their model matches their plan. - Considering what they would do differently if they were to do it again. - Describing their favourite and least favourite part of their model.	<u>Design</u> Designing our recipe as a class. <u>Make</u> Chopping playdough safely. - Chopping fruit and vegetables with support. <u>Evaluate</u> - Tasting the food and giving opinions. - Describing some of the following when tasting food: look, feel, smell and taste.
	Vocabulary	Thread, push, pull, through, under, over, up, down, pattern	pin, stick, cut, bend, slot, smooth, bendy, bumpy	Seeds, roots, leaves, stem, plant, flower, bud, juicy, sweet, sour, dry, wet, bitter, chewy, watery

KS1 D&T End Points (NC):	Term	Autumn	Spring	Summer
	Topic	Structures- Constructing a Windmill	Mechanisms- Moving Story Book	Cooking & Nutrition-Smoothies
	Key Knowledge	Technical • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together. • To know that the sails or blades of a windmill are moved by the wind. • To know that a structure is something built for a reason. • To know that stable structures do not topple. • To know that adding weight to the base of a structure can make it more stable. Additional • To know that design criteria is a list of points to ensure the product meets the clients' needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure. • To know that windmills are used to generate power and were used for grinding flour	Technical • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider. Additional • To know that in Design and technology we call a plan a 'design'.	Cooking and Nutrition • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables is any edible part of a plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).
Design To 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 To 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 To explore and evaluate a range of existing products evaluate their ideas and products against design criteria Cooking & Nutrition To use the basic principles of a healthy and varied diet to prepare dishes To understand where food comes from	Key Skills	Design • Learning the importance of a clear design criteria. Including individual preferences and requirements in a design Make • Making stable structures from card. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure. • Finding the middle of an object. • Puncturing holes. • Adding weight to structures. • Creating supporting structures. • Cutting evenly and carefully.	Design • Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book for a given audience. Make Following a design to create moving models that use levers and sliders. Evaluate • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience.	Design Designing smoothie carton packaging by-hand or on ICT software. Make • Chopping fruit and vegetables safely to make a smoothie. • Identifying if a food is a fruit or a vegetable. • Learning where and how fruits and vegetables grow. Evaluate • Suggesting information to be included on packaging.

	Vocabulary	Axle, base, centre, equal, evaluate, middle, rotate, rotor. rotor blades, sails, same, stable Strong, structure, test, weak, wind, windmill	Adapt, assemble, design, design criteria, input, Mechanism, model, sliders, test	Blend, blender, chopping board, compare Cut, design, evaluate, flavour, fork, fruit Healthy, ingredients, juice, juicer, leaf, plant, recipe, root, seed, select, smoothie, stem, table knife, taste, tree, vegetable, vine
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Year 2				
KS1 D&T End Points (NC): To 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 <u>Design</u> To 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 <u>Make</u> To 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 <u>Evaluate</u> To explore and evaluate a range of existing products evaluate their ideas and products against design criteria <u>Cooking & Nutrition</u> To use the basic principles of a healthy and varied diet to prepare dishes To understand where food comes from	Term	Autumn	Spring	Summer
	Topic	Cooking & Nutrition-Balanced Diet	Textiles-Pouches	Structures Baby Bears Chair
	Key Knowledge	<u>Cooking and Nutrition</u> • To know that 'diet' means the food and drink that a person or animal usually eats. • To understand what makes a balanced diet. • To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that 'ingredients' means the items in a mixture or recipe.	• To know that sewing is a method of joining fabric. • To know that different stitches can be used when sewing. • To understand the importance of tying a knot after sewing the final stitch. • To know that a thimble can be used to protect my fingers when sewing.	<u>Technical</u> • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.
	Key Skills	<u>Design</u> • Designing a healthy wrap based on a food combination which works well together. <u>Make</u> Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief. <u>Evaluate</u> • Taste testing food combinations and final products. • Describing the information that should be included on a label. • Evaluating which grip was most effective.	<u>Design</u> • Designing a pouch. <u>Make</u> • Selecting and cutting fabrics for sewing. • Decorating a pouch using fabric glue or running stitch. • Threading a needle. • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. • Neatly pinning and cutting fabric using a template. <u>Evaluate</u> • Troubleshooting scenarios posed by teacher. • Evaluating the quality of the stitching on others' work. • Discussing as a class, the success of their stitching against the success criteria. • Identifying aspects of their peers' work that they particularly like and why.	<u>Design</u> • Generating and communicating ideas using sketching and modelling. <u>Make</u> • Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper. <u>Evaluate</u> • Testing the strength of own structure. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure.
	Vocabulary	Appearance, balanced, carbohydrates, chopping board, combination, cut, dairy, design, design brief, diet, evaluate, feel, fruit, grate, grater, ingredients, menu, oils, proteins, review, scissors, smell, snip, spread, spreads, table knife, taste, vegetables	Decorate, fabric, fabric glue, knot, needle, needle threader, running stitch, sew, template, thread	design criteria, man-made, natural, properties, structure, stable, shape, model, test

Year 3				
KS2 D&T Curriculum End Points (NC)	Term	Autumn	Spring	Summer
	Topic	Mechanisms-Pneumatic Toys	Digital World-Wearable Technology	Cooking & Nutrition -Eating Seasonally
	Key Knowledge	Technical - To understand how pneumatic systems work. - To understand that pneumatic systems can be used as part of a mechanism. - To know that pneumatic systems operate by drawing in, releasing and compressing air. Additional - To understand how sketches, drawings and diagrams can be used to communicate design ideas. - To know that exploded-diagrams are used to show how different parts of a product fit together. - To know that thumbnail sketches are small drawings to get ideas down on paper quickly.	Technical - To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. - To know that a micro:bit is a pocket-sized, codeable computer. - To know that a simulator is able to replicate the functions of an existing piece of technology. Additional - To understand what is meant by 'point of sale display.' - To know that CAD stands for 'Computer-aided design'	Cooking & Nutrition - To know that vegetables and fruit grow in certain seasons - To know that cooking instructions are known as a 'recipe'. - To know that imported food is food which has been brought into the country. - To know that exported food is food which has been sent to another country.. - To know that eating seasonal foods can have a positive impact on the environment. - To know that similar coloured fruits and vegetables often have similar nutritional benefits. - To know that the appearance of food is as important as taste.
To apply their understanding of how to strengthen, stiffen and reinforce more complex structures To understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] To understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] To apply their understanding of computing to program, monitor and control their products Design To 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 To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Make To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately To select from and use a wider range of materials and	Key Skills	Design - Designing a toy which uses a pneumatic system. - Developing design criteria from a design brief. - Generating ideas using thumbnail sketches and exploded diagrams. - Learning that different types of drawings are used in design to explain ideas clearly. Make - Creating a pneumatic system to create a desired motion. - Building secure housing for a pneumatic system. - Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. - Selecting materials due to their functional and aesthetic characteristics. - Manipulating materials to create different effects by cutting, creasing,	Design - Problem solving by suggesting which features on a micro:bit might be useful and justifying my ideas. - Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge. - Developing design ideas through annotated sketches to create a product concept. - Developing design criteria to respond to a design brief Make - Following a list of design requirements. - Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm. Evaluate	Design - Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. Make - Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. - Following the instructions within a recipe. Evaluate - Establishing and using design criteria to help test and review dishes. - Describing the benefits of seasonal fruits and vegetables and the impact on the environment. - Suggesting points for improvement when making a seasonal tart

components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities Evaluate To 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 To understand how key events and individuals in design and technology have helped shape the world Cooking and Nutrition To understand and apply the principles of a healthy and varied diet To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed		folding and weaving. Evaluate • Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.		
	Vocabulary	Mechanism, lever, pivot, linkage system, pneumatic system, input, output, component, thumbnail sketch, research, adapt, properties, reinforce, motion	Analogue, analyse, annotate, badge, computer-aided design (CAD), control, design criteria, develop, digital, digital revolution, digital world, display, electronic, electronic products, fastening, feature, feedback, form, function, initiate, layers, monitor, net, opinion, point of sale, product, product design, program, sense, simulator, smart technology, test	Appearance, arid, climate, complementary, country, cut, design, evaluate, export, fruit, grate, import, ingredients, Mediterranean, mock-up, mountain, peel, polar, seasonal, seasons, snip, taste, temperate, texture, tropical, vegetable, weather

Year 4				
KS2 D&T Curriculum EndPoints (NC)	Term	Autumn	Spring	Summer
	Topic	Mechanical Systems-Making a Slingshot Car	Cooking & Nutrition-Adapting a Recipe	Electrical Systems-Torches
	Key Knowledge	Technical • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.. Additional • To know that aesthetics means how an object or product looks in design and technology. • To know that a template is a stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight). • To know that graphics are images which are designed to explain or advertise something. • To know that it is important to assess and evaluate design ideas and models against a list of design criteria.	Cooking & Nutrition • To know that the amount of an ingredient in a recipe is known as the 'quantity.' • To know that safety and hygiene are important when cooking. • To know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping. • To understand the importance of budgeting while planning ingredients for biscuits. • To know that products often have a target audience.	Technical To know that an electrical circuit must be complete for electricity to flow To know that a switch can be used to complete and break an electrical circuit. Additional To know the features of a torch; case, batteries, witch, reflector, lamp, lens. To know facts from the history and invention of the electric light bulb(s)- by Sir Joseph Swan and Thomas Edison

functional properties and aesthetic qualities

Evaluate

To 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

To understand how key events and individuals in design and technology have helped shape the world

Cooking and Nutrition

To understand and apply the principles of a healthy and varied diet

To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques

To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed

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	Key Skills	<u>Design</u> • Designing a shape that reduces air resistance • Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising a design. <u>Make</u> • Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design. <u>Evaluate</u> • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	<u>Design</u> • Designing a biscuit within a given budget, drawing upon previous taste testing judgements <u>Make</u> • Following a baking recipe, from start to finish, including the preparation of ingredients. • Cooking safely, following basic hygiene rules. • Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet). <u>Evaluate</u> • Describing the impact of the budget on the selection of ingredients. • Evaluating and comparing a range of food products	<u>Design</u> Designing a torch giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. <u>Make</u> Making a torch with a working electrical circuit and switch Using appropriate equipment to cut and attach materials Assembling a torch according to the design and success criteria <u>Evaluate</u> Evaluating electrical products Testing and evaluating the success of a final product
	Vocabulary	Chassis, energy. Kinetic, mechanism, air resistance, design, structure, graphics, research, model, template	Adapt addition, appearance, budget, buttery, combine, comment, compare, construct, cream, crunchy, cuboid, cut Design, evaluate, fold, hygiene, ingredients, layout, market research, modify, multiplication, opinion, pounds, sieve, sift, target audience, taste, texture, unique	Battery, bulb, buzzer, circuit diagram, component, conductor, electrical item, electricity, electronic item, insulator, series circuit, switch, target audience, test, torch, wire

Year 5				
KS2 D&T Curriculum EndPoints (NC)	Term	Autumn	Spring	Summer
	Topic	Electrical Systems-Doodlers	Cooking & Nutrition- Developing a Recipe	Textiles-Stuffed Toys
	Key Knowledge	Technical - To know that series circuits only have one direction for the electricity to flow. - To know when there is a break in a series circuit, all components turn off. - To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. - To know a motorised product is one which uses a motor to function. Additional - To know that product analysis is critiquing the strengths and weaknesses of a 'back' product. - To know that 'configuration' means how the parts of a product are arranged	Cooking & Nutrition - To know that recipes can be adapted to suit nutritional needs and dietary requirements. - To know that I can use a nutritional calculator to see how healthy a food option is. - To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. - To know that coloured chopping boards can prevent cross-contamination. - To know that nutritional information is found on food packaging.	To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. - To understand that it is easier to finish simpler designs to a high standard. - To know that soft toys are often made by creating appendages separately and then attaching them to the main body. - To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.
	Key Skills	Design - Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. - Developing design criteria based on findings from investigating existing products. - Developing design criteria that clarifies the target user. Make - Altering a product's form and function by tinkering with its configuration. - Making a functional series circuit, incorporating a motor. - Constructing a product with consideration for the design criteria Evaluate - Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. - Determining which parts of a product affect its function and which parts affect its form. - Analysing whether changes in configuration positively or negatively affect an existing product.	Design - Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. - Writing an amended method for a recipe to incorporate the relevant changes to ingredients Make - Cutting and preparing vegetables safely. - Using equipment safely, including knives, hot pans and hobs. - Knowing how to avoid cross-contamination. - Following a step by step method carefully to make a recipe Evaluate - Identifying the nutritional differences between different products and recipes. - Identifying and describing healthy benefits of food groups.	Design - Designing a stuffed toy, considering the main component shapes required and creating an appropriate template. - Considering the proportions of individual components. Make - Creating a 3D stuffed toy from a 2D design. - Measuring, marking and cutting fabric accurately and independently . - Creating strong and secure blanket stitches when joining fabric. - Threading needles independently. - Using appliqué to attach pieces of fabric decoration. - Sewing blanket stitch to join fabric. - Applying blanket stitch so the spaces between the stitches are even and regular. Evaluate Testing and evaluating an end product and giving point for further improvements.
	Vocabulary	circuit component, configuration, current, develop, DIY, investigate, motor, motorised, problem solve, product analysis, series circuit, stable, target user	Abattoir, adaptation, balanced, beef ,brand, cook, cross-contamination, cut, design, enhance, equipment, evaluate, farm, grate, hygiene, ingredients, label, measure, nutrient Nutrition, nutritional value, preference, press, process, Recipe, safety, theme	Accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, Stuffing, template

To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed

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Year 6				
KS2 D&T Curriculum EndPoints (NC)	Term	Autumn	Spring	Summer
	Topic	Cooking & Nutrition- Come Dine With Me	Mechanical Systems-Automata Toys	Digital World- Navigating the World
	Key Knowledge	<u>Cooking & Nutrition</u> • 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).	<u>Technical</u> • To understand that the mechanism in an automata uses a system of cams, axles and followers. • To understand that different shaped cams produce different outputs. <u>Additional</u> • To know that an automata is a hand powered mechanical toy. • To know that a cross-sectional diagram shows the inner workings of a product. • To understand how to use a bench hook and saw safely. • To know that a set square can be used to help mark 90° angles.	<u>Technical</u> • To know that accelerometers can detect movement. • To understand that sensors can be useful in products as they mean the product can function without human input. <u>Additional</u> • To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. • To know that 'multifunctional' means an object or product has more than one function. • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.
To apply their understanding of how to strengthen, stiffen and reinforce more complex structures To understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] To understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] To apply their understanding of computing to program, monitor and control their products <u>Design</u> To 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 To 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> To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately To 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> To 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 To understand how key events and individuals in design and technology have helped shape the world <u>Cooking and Nutrition</u> To understand and apply the principles of a healthy and varied diet To prepare and cook a variety of	Key Skills	<u>Design</u> • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken <u>Make</u> • 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. <u>Evaluate</u> • Evaluating a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process. • Evaluating health and safety in production to minimise cross contamination.	<u>Design</u> •Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement. • Understanding how linkages change the direction of a force. • Making things move at the same time. • Understanding and drawing cross-sectional diagrams to show the inner-workings of my design <u>Make</u> • Measuring, marking and checking the accuracy of the jelutong and dowel pieces required. • Measuring, marking and cutting components accurately using a ruler and scissors. • Assembling components accurately to make a stable frame. • Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles. • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set. <u>Evaluate</u> • Evaluating the work of others and receiving feedback on own work. • Applying points of improvement to their toys. • Describing changes they would make/do if they were to do the project again.	<u>Design</u> • Writing a design brief from information submitted by a client. • Developing design criteria to fulfil the client's request. • Considering and suggesting additional functions for my navigation tool. • Developing a product idea through annotated sketches. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD. <u>Make</u> • Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). • Explaining material choices and why they were chosen as part of a product concept. • Programming an N,E, S, W cardinal compass. <u>Evaluate</u> • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Developing an awareness of sustainable design. • Identifying key industries that utilise 3D CAD modelling and explaining why. • Describing how the product concept fits the client's request and how it will benefit the customers. • Explaining the key functions in my program, including any additions. • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch. • Demonstrating a functional program as part of a product concept pitch.

predominantly savoury dishes using a range of cooking techniques To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	Vocabulary	Balance, bitter, bridge method, complement, cookbook, cross-contamination, enhance, equipment, farm to fork, flavours, ingredients, method, research, pairing, recipe, preparation, salty, sour, storyboard, sweet, umami	Accurate, assembly-diagram, automata, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bit, exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, Measure, mechanism, model, research, right-angle, set square, tenon saw	Smart, smartphone, equipment, navigation, cardinal compass, application (apps), pedometer, GPS tracker, design brief, design criteria, client, function, program, duplicate, replica, loop, variable, value, if statement, boolean, corrode, mouldable, lightweight, sustainable design, environmentally friendly, biodegradable, recyclable, product lifecycle, product lifespan
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