Design Technology - Progression Map

OVERVIEW	Foundation 1	Foundation 2
Cycle A	**Autumn 1:** What does my world look like? **Autumn 2**: What do you eat on special occasions? **Spring 1**: How can we travel? **Spring 2:** How are animals different? **Summer 1**: What's happening in the great outdoors **Summer 2**: Who are your local superheroes?	**Autumn 1**: What do you see when you are out and about? **Autumn 2**: What do people celebrate in our community? **Spring 1**: What do you find in the deep, dark woods? **Spring 2**: What can we find at the bottom of the garden? **Summer 1:** What hatches out of an egg? **Summer 2:** What is life like in other countries?
Cycle B	**Autumn 1:** What does my world look like? **Autumn 2**: What do you eat at a special occasion? **Spring 1**: What happened to humpty dumpty? **Summer 1**: How does your garden grow? **Summer 2:** Where can we go on holiday?	(F2 only have a 1 year cycle)

	Focus	KS1	LKS2	UKS2
Topics - Cycle A	**Mechanisms**	Autumn 1- Where do Pirates Live? Slider and Levers Product- Sliding pirate on an island Spring 2 What's the story behind Nottingham?- Wheels and Axles Product- Drawbridge	Autumn 2 – How did the Ancient Egyptians live? Levers and Linkages (not linked to topic) Product: moving greetings card	Spring: Where would you choose to build a city? Cams (Discrete) Product: A toy
	Structures			
	Textiles	Summer 2: How has the seaside changed over time? Templates and Joining Product: Punch and Judy puppet		
	Food			
	Electrical		Summer 2 – What's the matter? Shell structures (not linked to topic) Product: Desk tidy	Autumn 2: Mayans More complex switches and circuits (This would need to be a discrete subject but links in to our science in this term) Product: Wire loop game
Topics - Cycle B	**Mechanisms**			
	Structures	Summer 2- What's growing in our garden? Freestanding structures		Summer – How to survive in extreme conditions Frame Structures

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		Product: play equipment for garden (slide)		Product: Tent design
	Textiles		Summer 1 – Settlers or invaders? 2D shape to 3D product (linked to topic) Product: Viking pouch	Spring Term – WW2 Combining different fabric Shapes Product: WW2 Make do and mend teddy
	Food	Spring 2- How can you design a healthy dish? Preparing fruit and vegetables Product: Fruit kebab	Spring -Romans Healthy and varied diet (Jamie Oliver) Product: Sandwiches	Autumn 1: What does a journey through the human body look like? Celebrating culture and seasonality Product: Cereal Snack
	Electrical		Autumn 1-Who lived in Britain first? Simple circuits and switches Product: TBC but could be a torch, reading light, illuminated sign	

EYFS	
EYFS The most relevant early years outcomes for Design and Technology and Expressive Arts and Design. This has 2 strands of: Creating with materials and Being imaginative. The development of children's design and artistic awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials joining them in different ways. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe. Children need to have experience of reviewing what they have made and thinking about ways to improve on this, building on initial designs and models. A lot of our DT work in carried out all year round in our continuous provision both inside and outside. Children at the expected level of development for the strand creating with materials at the end of F2 (ELG) will: • 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. Make use of props and materials when role playing characters in narratives and stories.	

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Understanding the World EYFS F1	Knowledge Covered	Skills covered
Embedded throughout the year through continuous provision both inside and outside. All topics will have elements of DT/ EAD within them. (see topics above)	• Different aspects of designing and making can be discussed with others • Different materials can be used for construction. They have different purposes • Vehicles and toy vehicles have wheels to help them move	• Explore ways of changing the shape or texture of malleable materials. • Share their creations with others and respond to questions and suggestions about how it was made. • Begin to talk about the main events and principle characters in stories, using props and materials for role play. • Make simple structures using a range of materials. • Use a range of media, tools and techniques to create images, express ideas and show different emotions. • Develop their own ideas and explore a variety of resources, including blocks and construction kits to create 'small worlds' and objects linked to their interests. • Explore, build and play with a range of resources and construction kits with wheels

Vocabulary
Key Vocabulary: compare, feel, least, less, more, most, idea, material, test, build, construct, strong, adapt, change, design, stronger, strongest wheel compare, different, same, fabric, protection, recipe, ingredient, share, cutting, hole punch, move, split pin, describe, explain, explore, construct, building, move, transport, wheel, material, instruction, method, mix, spread, join

Understanding the World EYFS F2	Knowledge covered	Skills covered
Autumn 1: What do you see when you are out and about? **Autumn 2**: What do people celebrate in our community? **Spring 1**: What do you find in the deep, dark woods? **Spring 2**: What can we find at the bottom of the garden? **Summer 1:** What hatches out of an egg? **Summer 2:** What is life like	Different materials are suitable for different purposes, such as construction kits for modelling and ingredients for baking. • Vehicles and machines have wheels and axles to help them move. • Everyday products are objects that we use every day. These objects have a specific use. • Materials can be soft and easy to shape, like dough, or harder and more difficult to shape, like wire. • When we try things out to see if they work, it is called a test. • Aspects of designing and making can be compared with others, including inspiration for making a product and the tools and techniques used. • Some products are significant because they have changed the way people live their lives. • Recognise that it is possible to change and alter their designs and ideas as they are making them.	Manipulate malleable materials into a variety of shapes and forms using their hands and other simple tools. • Cut, tear, fold and stick a range of papers and fabrics. • Create collaboratively, share ideas and use a variety of resources to make products inspired by existing products, stories or their own ideas, interests or experiences. • Talk about the characters, events and settings in stories they have listened to, using props and materials for role play. • Construct simple structures and models using a range of materials. • Explore, build and play with a range of resources and construction kits with wheels and axles. • Name and explore a range of everyday products and begin to talk about how they are used. • Observe how activities are going and adapt their ideas if necessary.

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in other countries?		• Describe what, why and how something was made and compare with others. • Explore significant products. • Adapt and refine their work as they are constructing and making. • Share their creations with others, explaining their intentions and the techniques and tools they used. • Select appropriate materials when constructing, joining and making.

Vocabulary
Key Vocabulary: adapt, build, construct, mode, choose, create, design, material, resource, select, share, test, attach, sew, thread, cut, flat, glue, join, make, size, compare, different, adapt, architect, label, question, structure, change, collect, property, solid, stable, strong, useful, cooperate, idea, building, construction, strong, sturdy, add, alter, change, explore, mend, transform, attachment, axle, wheel, material, compare, different, same, bake, cool, heat, cut, ingredient, mix, measure, recipe, combine, boil, cook, texture, pour, prepare, separate, adapt, change, improve, material, protection purpose

Key Stage 1 & 2

Mechanisms (Key knowledge & skills)	KS1 Sliders and Levers	KS1 Wheels and Axis	LKS2 Levers and Linkages	UKS2 CAMS
Prior knowledge	Early experiences of working with paper and card to make simple flaps and hinges. Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.	Assembled vehicles with moving wheels using construction kits. Explored moving vehicles through play. Gained some experience of designing, making and evaluating products for a specified user and purpose. Developed some cutting, joining and finishing skills with card.	Explored and used mechanisms such as flaps, sliders and levers. Gained experience of basic cutting, joining and finishing techniques with paper and card.	Experience of axles, axle holders and wheels that are fixed or free moving. Basic understanding of different types of movement. Experience of cutting and joining techniques with a range of materials including card, plastic and wood. An understanding of how to strengthen and stiffen structures.
Designing	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through drawings and mock-ups with card and paper.	Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through drawings and mock-ups.	Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. Use annotated sketches and prototypes to develop, model and communicate ideas.	Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. Develop a simple design specification to guide their thinking.

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				Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.
Making	Plan by suggesting what to do next. Select and use tools, explaining their choices, to cut, shape and join paper and card. Use simple finishing techniques suitable for the product they are creating	Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.	Order the main stages of making. Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. Select from and use finishing techniques suitable for the product they are creating.	Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost
Evaluating	Explore a range of existing books and everyday products that use simple sliders and levers. Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria	Explore and evaluate a range of products with wheels and axles. Evaluate their ideas throughout and their products against original criteria.	Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make.	Compare the final product to the original design specification. Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work. Investigate famous manufacturing and engineering companies relevant to the project.
Technological knowledge & understanding	Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. Know and use technical vocabulary relevant to the project.	Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.	Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project	Understand that mechanical systems have an input, process and an output. Understand how cams can be used to produce different types of movement and change the direction of movement.

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				Know and use technical vocabulary relevant to the project
Glossary	Mechanism – a device used to create movement in a product. Lever – a rigid bar which moves around a pivot. Levers are used in many everyday products. In this project children will use card strips for levers and paper fasteners for pivots. Slider – a rigid bar which moves backwards and forwards along a straight line. Unlike a lever, a slider does not have a pivot point. Slot – the hole through which a lever or slider is placed to enable part of a picture to move. Guide or bridge – a short card strip used to keep sliders in place and control movement.	Axle – a rod on which one or more wheels can rotate, either freely or be fixed to and turn with the axle. Axle holder – the component through which an axle fits and rotates. Chassis – the frame or base on which a vehicle is built. Friction – resistance which is encountered when two things rub together. Dowel – wooden rods used for making axles to hold wheels. vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining,	Mechanism – a device used to create movement in a product. Lever – a rigid bar which moves around a pivot. Levers are used in many everyday products. In this project children will use card strips for levers and paper fasteners for pivots. Linkage – the card strips joining one or more levers to produce the type of movement required. The term 'linkage' is also used to describe the lever and linkage mechanism as a whole. Slot – the hole through which a lever is placed to enable part of a picture to move. Guide or bridge – a short card strip used to keep lever and linkage mechanisms in place and control movement. Loose pivot – a paper fastener that joins card strips together. Fixed pivot – a paper fastener that joins card strips to the backing card. System – a set of related parts or components used to create an outcome. Systems have an input,	Rotary motion – movement that goes round. Oscillating motion – moving to and fro around a pivot point, as in a lever. Reciprocating motion – backwards and forwards movement in a straight line, as in a slider. Cam – a mechanism that changes one sort of movement to another. Cams can be an off-centre wheel or a specially shaped wheel. Follower – the device that follows the movement of the cam: a lever or a slider. Lever – a piece of rigid material that moves to and fro around a pivot point creating oscillating motion. Slider – a piece of rigid material that moves backwards and forwards in a straight line creating reciprocating motion. Guide – a piece of material used to guide the movement of another. Spacer – a piece of material used to create extra space to allow moving

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			process and an output. In a lever and linkage mechanism, the 'input movement' is where the user pushes or pulls a card strip. The 'output movement' is where one or more parts of the picture move.	parts to move freely.
Vocabulary	slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function	shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function prototype, design criteria, innovative, appealing, design brief	cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief

Structures (Key knowledge & skills)	**KS1 Freestanding Structures**	**LKS2 Shell Structures**	**UKS2 Frame Structures**
Prior knowledge	Experience of using construction kits to build walls, towers and frameworks. Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. Experience of different methods of joining card and	Experience of using different joining, cutting and finishing techniques with paper and card. A basic understanding of 2D and 3D shapes in mathematics and the physical properties and everyday uses of materials in science.	Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. Basic understanding of what structures are and how they can be made stronger, stiffer and more stable.

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	paper		
Design	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through talking, mock-ups and drawings.	Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.	Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.
Make	Plan by suggesting what to do next. Select and use tools, skills and techniques, explaining their choices. Select new and reclaimed materials and construction kits to build their structures. Use simple finishing techniques suitable for the structure they are creating	Order the main stages of making. Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. Explain their choice of materials according to functional properties and aesthetic qualities. Use finishing techniques suitable for the product they are creating.	Formulate a clear plan, including a step-bystep list of what needs to be done and lists of resources to be used. Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. Use finishing and decorative techniques suitable for the product they are designing and making.
Evaluate	Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.	Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. Test and evaluate their own products against design criteria and the intended user and purpose.	Investigate and evaluate a range of existing frame structures. Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. Research key events and individuals relevant to frame structures.

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Technological knowledge & understanding	Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project	Develop and use knowledge of how to construct strong, stiff shell structures. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Know and use technical vocabulary relevant to the project.	Understand how to strengthen, stiffen and reinforce 3D frameworks. Know and use technical vocab
Glossary	Freestanding structure – a structure that stands on its own foundation or base without attachment to anything else. Frame structure – a structure made from thin components e.g. tent frame. Shell structure – a hollow structure with a thin outer covering. Stability – in relation to a freestanding structure, the extent to which it is likely to fall over if a force is applied. Buttress – a structure added to a wall, tower or framework to make it more stable and/or reinforce it. Brick bonding – arranging bricks in a wall to improve the performance of the structure or improve its appearance. Mock-up – 3-D representation of a product.	Cuboid – a solid body with rectangular sides. Edge – where two surfaces meet at an angle. Face – a surface of a geometric shape. Font – a printer's term meaning the style of lettering being used. Net – the flat or opened-out shape of an object such as a box. Prism – a solid geometric shape with ends that are similar, equal and parallel. Scoring – cutting a line or mark into sheet material to make it easier to fold. Shell structure – a hollow structure with a thin outer covering. Vertex – used to refer to the corners of a solid geometric shape, where edges meet	Modelling – the process of making a 3-D representation of a structure or product. Compression – the application of pressure to squeeze an object. Strut – a part of a structure under compression. Tension – a force pulling on a material or structure. Tie – a part of a structure under tension. Diagonal – a straight line that goes from one corner to another inside a shape. Horizontal – a line that is parallel to the ground. Vertical – a line that is at right angles to the ground. Triangulation – the use of triangular shapes to strengthen a structure. Frame structure – a structure made from thin components e.g. tent frame.
Vocabulary	cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining,	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype,

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	metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function	assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype	annotated sketch, purpose, user, innovation, research, functional

Textiles (Key knowledge & skills)	**KS1 Templates and Joining**	**LKS2 2D shape to 3D product**	**UKS2 Combining different fabric shapes**
Prior knowledge	Explored and used different fabrics. Cut and joined fabrics with simple techniques. Thought about the user and purpose of products	Have joined fabric in simple ways by gluing and stitching. Have used simple patterns and templates for marking out. Have evaluated a range of textile products.	Experience of basic stitching, joining textiles and finishing techniques. Experience of making and using simple pattern pieces.
Designing	Design a functional and appealing product for a chosen user and purpose based on simple design criteria. Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.	Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. Produce annotated sketches, prototypes, final product sketches and pattern pieces.	Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. Develop, model and communicate ideas through talking, drawing, templates, mockups and prototypes and, where appropriate, computer-aided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.
Making	Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. Select from and use textiles according to their	Plan the main stages of making. Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing.	Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.

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	characteristics.	Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.	Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost
Evaluating	Explore and evaluate a range of existing textile products relevant to the project being undertaken. Evaluate their ideas throughout and their final products against original design criteria.	Investigate a range of 3-D textile products relevant to the project. Test their product against the original design criteria and with the intended user. Take into account others' views. Understand how a key event/individual has influenced the development of the chosen product and/or fabric.	Investigate and analyse textile products linked to their final product. Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work.
Technological knowledge & understanding	Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.	Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Understand the need for patterns and seam allowances. Know and use technical vocabulary relevant to the project.	A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate
Glossary	Appliqué – to attach a decorative fabric item onto another piece of fabric by gluing and/or sewing. Design – to generate, develop and communicate ideas for a product. Embroider – to decorate fabric with stitches.	Appliqué – means 'applied' - describes method of stitching/gluing patches onto fabric (originally to mend holes in worn clothes) to provide decoration. Pattern/Template – a shape drawn to exact shape and size and used to assist cutting out.	Mock up – quick 3-D modelling using easy to work and cheaper materials and temporary joints. Useful for checking proportions and scale. Pattern or template – a shape drawn to exact shape and size, used to assist in cutting out.

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	Evaluate – to judge how a product meets chosen criteria. Fray – to unravel or become worn at the edge. Glove puppet – a glove puppet fits over the hand, and the fingers operate its head and arms. Mock-up – a model which allows children to try out ideas using cheaper materials and temporary joints. Seam – a row of stitches joining two pieces of fabric. Sew – to join pieces of fabric with stitches. Template – a shape drawn to assist in cutting out shapes.	Seam – a line of stitching that joins pieces of fabrics together. Seam Allowance – extra fabric allowed for joining together - usually 1.5cm. Prototype – a model that is made to test whether a design will work. Aesthetics – the way in which the product looks with the nature and expression of beauty	Seam allowance – extra fabric allowed for joining together - 15mm for domestic patterns. Specification – describes what a product has to do. Tacking – large running stitches to hold pieces of fabric together temporarily. Working drawing – detailed drawing contains all information needed to make a product but is updated as changes are made.
Vocabulary	names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mockup, design brief, design criteria, make, evaluate, user, purpose, function	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype

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Food (Key knowledge & skills)	KS1 Preparing Fruit and Vegetables	LKS2 Healthy and Varied Diet	UKS2 Celebrating Cultures and Seasonality
Prior knowledge	Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell. Experience of cutting soft fruit and vegetables using appropriate utensils.	Know some ways to prepare ingredients safely and hygienically. Have some basic knowledge and understanding about healthy eating and The Eatwell Guide. Have used some equipment and utensils and prepared and combined ingredients to make a product.	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients.
Designing	Design appealing products for a particular user based on simple design criteria. Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. Communicate these ideas through talk and drawings.	Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.	Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.
Making	Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.	Plan the main stages of a recipe, listing ingredients, utensils and equipment. Select and use appropriate utensils and equipment to prepare and combine ingredients. Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics	Write a step-by-step recipe, including a list of ingredients, equipment and utensils Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. Make, decorate and present the food product appropriately for the intended user and purpose.
Evaluating	Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. Evaluate ideas and finished products against design criteria, including intended user and purpose.	Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. Evaluate the ongoing work and the final product with reference to the design criteria and the views of	Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/ charts such as star diagrams. Evaluate the final product with reference back to the

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		others.	design brief and design specification, taking into account the views of others when identifying improvements. Understand how key chefs have influenced eating habits to promote varied and healthy diets.
Technological knowledge & understanding	Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell Guide. Know and use technical and sensory vocabulary relevant to the project.	Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately	Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.
Glossary	Fruit – plant or tree's edible seed with envelope. Vegetable – plant used for food. Nutrients – all the things in food that the body needs to remain healthy. Pith – the soft white lining inside fruit such as oranges. Salad – a cold dish of fresh and/or cooked vegetables or fruit. Sensory evaluation – subjective testing of foods where senses are used to evaluate qualities such as appearance, smell, taste, texture (mouth feel). Kebab – cooked and/or fresh ingredients on a skewer	Appearance – how the food looks to the eye. Texture – how the product feels in the mouth. Sensory evaluation – evaluating food products in terms of the taste, smell, texture and appearance. Preference test – trying different foods and deciding which you like best. Strawberry huller – tool to remove the stalk and leaves from a strawberry. Processed food – ingredients that have been changed in some way to enable them to be eaten or used in food preparation and cooking.	Finishing – related to the appearance of the product – shape, decoration and colour. Rubbing in – rubbing the dry ingredients together with the fat, lifting to put air into the mixture, so that it resembles fine breadcrumbs. Knead – pulling and squeezing dough to make it smooth. Bran – the hard, protective shell of a grain of wheat. Dough – a mixture of flour, yeast and water before it is cooked. Endosperm – the store of food inside a seed. Germ – part of the seed where the root and shoots grow from. Yeast – a tiny plant which makes bubbles of carbon dioxide when mixed with flour and warm water. Unleavened bread – flat bread where yeast has not

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			been added.
Vocabulary	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief

Electrical (Key knowledge & skills)	**KS1**	**LKS2** **Simple Circuits and Switches**	**UKS2** **More Complex Circuits and Switches**
Prior knowledge		Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers. Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.	Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. Initial experience of using computer control software and an interface box or a standalone box, e.g. writing and modifying a program to make a light flash on and off.
Designing		Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate	Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Generate and develop innovative ideas and share

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		realistic ideas through discussion and, as appropriate, annotated sketches, crosssectional and exploded diagrams.	and clarify these through discussion. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.
Making		Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities	Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.
Evaluating		Investigate and analyse a range of existing battery-powered products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work	Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness for the intended user and purpose. Investigate famous inventors who developed ground-breaking electrical systems and components.
Technological knowledge & understanding		Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. Apply their understanding of computing to program and control their products. Know and use technical vocabulary relevant to the project.	Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project.

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Glossary		Circuit – path through which electricity passes. Conductor – a material which allows an electric current to pass through it. Insulator – a material which does not easily allow electric current to pass through it. Prototype – a model made to test whether a design will work. Push-to-break switch – a switch turned off by pressing it. Push-to-make switch – a switch turned on by pressing it. Reed switch – a switch operated by a magnet. Toggle switch – a switch operated when a lever is pressed. System – a set of related parts or components that together achieve a desired outcome. Output devices – components that produce an outcome e.g. bulbs and buzzers. Input devices – components that are used to control an electrical circuit e.g. switches	Modelling – to realise and manipulate ideas in a tangible form. Open switch – when a switch is positioned such that electricity cannot flow through it. Closed switch – when a switch is positioned such that electricity can flow through it. Normally open – the term used to describe when a switch is in the off position, i.e. the switch is open and no electricity can flow when the button on not pressed. Normally closed – the term used to describe when a switch is in the on position i.e. the switch is closed and electricity can flow when the button is not pressed Computer control input – when a switch, such as a micro switch, sends a signal to a computer control box to activate a sequence of events such as a buzzer or light being used to attract attention or alert people. Output devices – components that produce an outcome e.g. bulbs and buzzers. Input devices – components that are used to control an electrical circuit e.g. switches or sensors.
Vocabulary		series circuit, fault, connection, toggle switch, pushto-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function, prototype, design criteria, innovative, appealing, design brief	series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart function, innovative, design specification, design brief, user, purpose

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