Meadowbank Primary School
Lifelong Learners, Leaders of Change, Lasting Legacy

Design and Technology Progression of Skills, Knowledge and Vocabulary Map 2025-2026

Expressive Arts and Design	**Foundation Stage**	
Creating with Materials	**EYFS Statutory Educational Programme:** **The development of children's artistic and cultural 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. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, selfexpression, 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.**	
	Foundation Stage 1 **Cause and Effect, Structures, Significance**	**Foundation Stage 2** **Cause and Effect, Structures, Significance**
	Explore different materials freely, to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials/ingredients/equipment to use to express them. Join different materials and explore different textures. Share and talk about their products and representations with a key person. Carry out sensory evaluations of materials and products.	Plan and share ideas before constructing. Use various construction materials, for example, joining pieces, stacking vertically and horizontally, balancing making enclosures and creating spaces. Use simple tools competently and appropriately. For example, scissors, glue spreader, stapler, hole punch, modelling tools, knife. Use simple techniques competently and appropriately. For example, snipping, cutting, sticking, folding, rolling and joining. Select tools and techniques needed to shape, assemble and join materials they are using. Evaluate their products and representations, using all of their senses to have a learning conversation. Describe sensory evaluations using each of our senses: taste, touch, smell, sight and sound. Improve their product in response to their learning conversation. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.
Key Vocabulary	Designer, design, plan, model, change, improve, observe, snip, cut, roll, pinch, tear, stick, join, texture, rough, smooth.	

Year Group Connected Concepts	**Key Stage 1** **Cause and Effect, Structures, Significance**		**Lower Key Stage 2** **Cause and Effect, Structures, Significance**		**Upper Key Stage 2** **Cause and Effect, Structures, Significance**	
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Food Technology	Preparing Fruit and Vegetables **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.	Preparing Fruit and Vegetables **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.	Healthy and Varied Diet **Designing** 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.	Healthy and Varied Diet **Designing** 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.	Celebrating Culture and Seasonality **Designing** Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.	Celebrating Culture and Seasonality **Designing** 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

	Communicate these ideas through talk and drawings. **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. **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.	Communicate these ideas through talk and drawings. **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. **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.	Use annotated sketches and appropriate information and communication technology, such as webbased recipes, to develop and communicate ideas. **Making** 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. **Evaluating** 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 others.	Use annotated sketches and appropriate information and communication technology, such as webbased recipes, to develop and communicate ideas. **Making** 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. **Evaluating** 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 others.	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** Write a stepbystep 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** 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 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.	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** Write a stepbystep 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** 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 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.

Assessment Indicators						
	Designing Design an appealing food product through talk and drawings for a particular user. Create simple design criteria and design based on sensory investigations of fruit and vegetables. **Making** Use utensils safely to create food product. This may include cutting, chopping, peeling, slicing, grating or squeezing. Select and talk through food choices according to their characteristics. **Evaluating** Carry out sensory evaluations of a variety of fruits and vegetables. Evaluate whether the finished product meets the design criteria, intended user and purpose. **Knowledge** 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 plate. Know and use technical and sensory vocabulary relevant to the project.	**Designing** Design an appealing food product through talk and drawings for a particular user. Create simple design criteria and design based on sensory investigations of fruit and vegetables. **Making** Use utensils safely to create food product. This may include cutting, chopping, peeling, slicing, grating or squeezing. Select and talk through food choices according to their characteristics. **Evaluating** Carry out sensory evaluations of a variety of fruits and vegetables. Evaluate whether the finished product meets the design criteria, intended user and purpose. **Knowledge** 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 plate. Know and use technical and sensory vocabulary relevant to the project.	**Designing** Generate design criteria linked to appearance, taste, texture, aroma, and including the user and purpose. Create design ideas using annotated sketches or ICT (e.g. web based recipe) **Making** Create a plan that details the main stages of making and lists equipment, ingredients and utensils. Select and use equipment correctly to create food product. Talk through ingredient selections according to their sensory characteristics. **Evaluating** Carry out sensory evaluations and record these using tables/graphs. Refer back to the design criteria and take into consideration the views of others to evaluate food product. **Knowledge** 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.	**Designing** Generate design criteria linked to appearance, taste, texture, aroma, and including the user and purpose. Create design ideas using annotated sketches or ICT (e.g. web based recipe) **Making** Create a plan that details the main stages of making and lists equipment, ingredients and utensils. Select and use equipment correctly to create food product. Talk through ingredient selections according to their sensory characteristics. **Evaluating** Carry out sensory evaluations and record these using tables/graphs. Refer back to the design criteria and take into consideration the views of others to evaluate food product. **Knowledge** 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.	**Designing** Generate a design brief and criteria through research and discussions. Make design decisions to create a final product design that links to the user and purpose. Create a food product design using words, annotated sketches and ICT where appropriate. **Making** Write a step-by-step recipe, including a list of ingredients, equipment and utensils. Use equipment accurately to measure out and create food product. Make, decorate and present the food according to the user needs and purpose. **Evaluating** Carry out sensory evaluations of a range of products/ingredients and record these using a table/graph/chart or star diagram. Evaluate the final product against the design brief, criteria and after taking into consideration the views of others. **Knowledge** 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	**Designing** Generate a design brief and criteria through research and discussions. Make design decisions to create a final product design that links to the user and purpose. Create a food product design using words, annotated sketches and ICT where appropriate. **Making** Write a step-by-step recipe, including a list of ingredients, equipment and utensils. Use equipment accurately to measure out and create food product. Make, decorate and present the food according to the user needs and purpose. **Evaluating** Carry out sensory evaluations of a range of products/ingredients and record these using a table/graph/chart or star diagram. Evaluate the final product against the design brief, criteria and after taking into consideration the views of others. **Knowledge** 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 how key chefs have influenced eating habits and healthy diets. Know and use relevant technical and sensory vocabulary.	source of different food products. Know how key chefs have influenced eating habits and healthy diets. Know and use relevant technical and sensory vocabulary.
Key Vocabulary	*Grown, underground, healthy diet, names of equipment and utensils, sensory vocabulary (e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard.) slicing, peeling, cutting.*	*Farmed, grown, flesh, skin, seed, pip, core, squeezing, grating, ingredients, planning, tasting, arranging, popular, criteria.*	*Names of techniques, texture, taste, appearance, hygenic, edible, reared, caught, frozen, tinned, processed, seasonal, harvested, design criteria, purpose, user.*	*Preference, fresh, savoury, annotated sketch, sensory evaluations (e.g. moist, greasy)*	*Yeast, dough, wholemeal, unleavened, spice, herbs, fat, sugar, carbohydrate, protein, vitamins, nutrients, combine, fold, knead, rubbing in, whisk, beat, roll out, shape, crumble, design specification, innovative, research.*	*Nutrition, gluten, dairy, allergy, intolerance, source, seasonlity, innovative.*
Year Group Connected Concepts	**Key Stage 1** **Cause and Effect, Structures, Significance**		**Lower Key Stage 2** **Cause and Effect, Structures, Significance**		**Upper Key Stage 2** **Cause and Effect, Structures, Significance**	
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Mechanisms **Mechanical Systems**	Sliders and Levers **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 mockups with card and paper. **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. **Evaluating** Explore a range of existing books and everyday	Wheels and Axles **Designing** Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through drawings and mockups. **Making** 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. **Evaluating** Explore and evaluate a		Levers and Linkages / Pneumatics **Designing** 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. **Making** Order the main stages of making. Select from and use appropriate tools with some accuracy to cut, shape and join materials and components such as paper, card, tubing, syringes and balloons. Select from and use finishing techniques		Pulleys or Gears / Cams **Designing** Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and webbased resources. Develop a simple design specification to guide their thinking. Develop and communicate ideas through discussion, annotated drawings, exploded and crosssectional diagrams, and drawings from different views. **Making** Produce detailed lists of tools, equipment and materials. Formulate stepbystep plans and, if appropriate, allocate tasks within a team.

	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.	range of products with wheels and axles. Evaluate their ideas throughout and their products against original criteria.		suitable for the product they are creating. **Evaluating** Investigate and analyse books/videos and, where available, other products with lever, linkage and pneumatic mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make.		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** 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. Investigate famous manufacturing and engineering companies relevant to the project.
Assessment Indicators	**Designing** Create a design using drawing/a mockup, based on a simple design criteria. **Making** Create a slider and lever mechanism using a variety of tools and finishing techniques. **Evaluating** Evaluate a range of products including sliders and levers, in relation to the purpose, user and design criteria. **Knowledge** Explore and use sliders and levers. Understand that different mechanisms produce	**Designing** Talk through drawn/mockup designs, linking to design criteria and own experiences. **Making** Use a variety of tools and materials to create a wheel and axle mechanism. **Evaluating** Give an opinion on a range of products including wheels and axles. Refer back to design criteria throughout making process, adapting where necessary. **Knowledge** Explore and use wheels, axles and axle holders.		**Designing** Create an annotated sketch and prototype based on own design criteria and needs of the user. **Making** Use a variety of tools and finishing techniques to create a lever, linkage and pneumatic mechanism. **Evaluating** Evaluate a range of products that include lever, linkage and pneumatic mechanisms. Refer back to own design criteria and user needs throughout making		**Designing** Create an annotated drawing/exploded or crossectional diagram to showcase design, based on research. Create own design specification. **Making** Create a step-by-step plan, including tools, equipment and materials. Create a pulley, gear and cam mechanism using a variety of tools and equipment. **Evaluating** Make comparisons between final product and original design.

	different types of movement. Know and use technical vocabulary relevant to the project.	Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.		process, adapting where necessary. **Knowledge** Understand and use lever, linkage and pneumatic mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project.		Carry out product testing with user, quality and functionality in mind. Make adaptations to design/final product after taking on the views of others. **Knowledge** Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Understand how cams can be used to produce different types of movement and change the direction of movement. Talk through how the significant person has influenced their design/final product. Know and use technical vocabulary relevant to the project.
Key Vocabulary	*Slider, lever, pivot, slot, bridge/guide, fastener, join.* *Pull, push, up, down, straight, curve.* *Design, make, evaluate, user, purpose, design criteria, product, function.*	*Vehicle, wheel, axle, axle holder, chassis.* *Fixed, free, mechanism.* *Assembling, cutting, joining, shaping, finishing, (plus the names of any tools/equipment/materials used)*		*Linear, rotary, oscillating, reciprocating, function, prototype, innovative, appealing.* *<u>Levers and Linkages</u>* *Lever, linkage, pivot, fixed, loose.* *<u>Pneumatics</u>* *Pneumatic, system, input, pressure, process, output,*		*<u>Pulleys or Gears</u>* *Pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, motor, circuit, switch, diagram, mechanical system, electrical system, design decisions, functionality, authentic.* *<u>Cams</u>* *Cam, type of cam relevant to project (e.g. egg, off-centre, peg or snail), shaft, handle, framework, output movement.*
Year Group Connected Concepts	**Key Stage 1** **Cause and Effect, Structures, Significance**		**Lower Key Stage 2** **Cause and Effect, Structures, Significance**		**Upper Key Stage 2** **Cause and Effect, Structures, Significance**	
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

Textiles	Templates and Joining **Designing** Design a functional, purposeful 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, mockups and information and communication technology. **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 characteristics**.** **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.		2D shape to 3D Product **Designing** 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. **Making** Plan the main stages of making. Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. **Evaluating** Investigate a range of 3D 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.			Combining Different Fabric Shapes / ComputerAided Design **Designing** 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, computeraided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. **Making** Produce detailed lists of equipment and fabrics relevant to their tasks. Formulate stepbystep plans and, if appropriate, allocate tasks within a team. 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** 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.
Assessment Indicators	**Designing** Create a design using talk, drawing, a template, a mockup or ICT, based on a simple design criteria. Create a design with user and purpose in mind. **Making** Talk through the characteristics of their chosen textiles. Create a textile product by marking out, cutting, joining and finishing. **Evaluating** Give an opinion on a range of textile products. Make comparisons between their product and the design criteria. **Knowledge** Understand how simple 3D 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.		**Designing** Create an annotated sketch, prototype, and pattern piece to showcase design. Create a design that meets a design criteria for a specific purpose and user. **Making** Create a textile product using a range of tools with accuracy. Talk through fabric and fastening choices in relation to their functional characteristics. **Evaluating** Evaluate a range of 3D textile products. Carry out product testing, with the original design criteria and user in mind. Evaluate product after testing, taking into account the views of others. **Knowledge** 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. Understand how the significant person has influenced their product.			**Designing** Create a design using talk, drawing, templates, mockups, prototypes and where appropriate CAD. Talk through how their design is based on research, with an intended user, purpose and design specification in mind. **Making** Create a step-by-step plan with a detailed list on equipment and fabric. Create a textile product using a range of tools and equipment. **Evaluating** Analyse a variety of textile products. Make comparisons between their final product and design specification. Test their product with the intended user, purpose and functionality in mind. Make adaptations to their product/design after considering the views of others and the results of testing. **Knowledge** Know a 3D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.

			Know and use technical vocabulary relevant to the project.			Understand that fabrics can be strengthened, stiffened and reinforced where appropriate.
Key Vocabulary	*Running stitch, needle, thread, felt, template, mark out, decorate, finish, features, quality, design brief.*		*Fabric, names of fabrics, fastening, compartment, zip, button, over stitch, blanket stitch, seam, seam allowance, annotated sketch, functional, aesthetics, pattern pieces.*			*Wadding, reinforce, hem, name of textiles and fastenings used, pins, mockup, prototype, computer aided design (cad), scale, modify.*
Year Group Connected Concepts	**Key Stage 1 Cause and Effect, Structures, Significance**		**Lower Key Stage 2 Cause and Effect, Structures, Significance**		**Upper Key Stage 2 Cause and Effect, Structures, Significance**	
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Structures		Freestanding 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 talking, mockups and drawings. **Making** 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. **Evaluating** 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	Shell Structures **Designing** Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. Develop ideas through the analysis of existing shell structures and use computeraided design to model and communicate ideas. **Making** Plan the order of the main stages of making. Select and use appropriate tools and software 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 computergenerated finishing techniques suitable for the product they are creating.		Frame Structures **Designing** Carry out research into user needs and existing products, using surveys, interviews, questionnaires and webbased 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. **Making** Formulate a clear plan, including a stepbystep 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	

		whether it meets the original design criteria.	**Evaluating** Investigate and evaluate a range of 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.		suitable for the product they are designing and making. **Evaluating** 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.	
Assessment Indicators		**Designing** Create a freestanding structure design through talk, drawings and mockups based on simple design criteria and own experiences. **Making** Create a freestanding structure using a variety of tools, skills and techniques. Talk through material choices. **Evaluating** Evaluate a range of freestanding structures within school and the local community. Evaluate their final product, talking through how well I tmeets the purpose, user needs and design criteria. **Knowledge** Know how to make freestanding structures stronger, stiffer and more stable.	**Designing** Create a shell structure design using CAD. Work collaboratively to create a design criteria, focusing on user needs and aestethic/functional purpose of the product. **Making** Create a shell structure using a variety of tools to measure, mark out, cut, shape and assemble with accuracy. Talk through material choices according to functional and aesthetic qualities. **Evaluating** Include materials, components and techniques in evaluations of shell structures. Carry out product testing with the design criteria, user and purpose in mind. **Knowledge**		**Designing** Carry out research into user needs and existing products before designing. Create a frame structure design using prototypes, annotated sketches and discussion. Create a design specification after considering time, resources and cost. **Making** Create a step-by-step plan including a resource list Select and use tools accurately to measure, cut, shape, join and construct a frame structure. Use finishing and decorative tenchniques. **Evaluating** Evaluate a variety of different frame structures. Evaluate their own frame structure, commenting on the strengths, areas for	

		Know and use technical vocabulary relevant to the project.	Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Develop and use knowledge of how to construct strong, stiff shell structures. Know and use technical vocabulary relevant to the project.		development and how well it meets the user needs, the purpose and the initial design specification. Carry out testing to evaluate the final product Discuss how the significant person has influenced their design/product. **Knowledge** Understand how to strengthen, stiffen and reinforce 3D frameworks. Know and use technical vocabulary relevant to the project.	
Key Vocabulary		*Fold, fix, structure, framework, weak, strong, base, side, edge, surface, product, names of material used, names of 3D shapes used.*	*Shell structure, 3D, net, scoring, tabs, joining, assmble, stiff, corrugating, ribbing, prototype.*		*Frame structure, stiffen, strengthen, reinforce, triangulation, stability, temporary, permanent, design specification, research.*	
Year Group Connected Concepts	**Key Stage 1** **Cause and Effect, Structures, Significance**		**Lower Key Stage 2** **Cause and Effect, Structures, Significance**		**Upper Key Stage 2** **Cause and Effect, Structures, Significance**	
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Electrical Systems				Simple Circuits and Switches / Simple Programming and Control **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 realistic ideas through discussion and, as appropriate, annotated sketches, crosssectional and exploded diagrams.	More Complex Switches/ Monitoring and Control **Designing** 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 and clarify these through discussion. Communicate ideas through annotated sketches, pictorial representations of	

				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. **Evaluating** Investigate and analyse a range of existing batterypowered products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	electrical circuits or circuit diagrams. **Making** Formulate a stepbystep 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** 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 groundbreaking electrical systems and components.	
Assessment Indicators				**Designing** Gather information on user needs/wants and purpose to create design criteria. Create product design using annotated sketches, crossectional or exploded diagrams. **Making** Talk through the main stages of making.	**Designing** Create a product design that responds automatically to changes in the environment, taking cost, research, resources and time constraints into consideration. Create a product design through annotated sketches, pictorial respresentations of	

				Select and use tools with accuracy to cut, shape, join and finish. Talk through material and component choices according to their functional and aestetic qualities. **Evaluating** Evaluate a range of battery powered products. Identify strengths and areas for improvement in their own product against their own design criteria. **Knowledge** 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.	electrical circuits or circuit diagrams. Talk through product design. **Making** Create a step-by-step plan which includes a resource, equipment, material and component list. Create a functioning electrical product that is assembled correctly. Create and modify a computer program to enable product to work automatically in response to changes in the environment. **Evaluating** Evaluate product throughout construction, making adaptations where necessary to meet the initial design criteria. Test the electrical system to ensure effectiveness. **Knowledge** Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products. Talk through how the significant person has influenced their design Name one inventor who developed groundbreaking electrical systems.	

					Know and use technical vocabulary relevant to the project.	
Key Vocabulary				*Circuit, fault, connection, switch, type of switch, battery, LED/LDR, bulb, wire, conductor, control, program.*	*Parallel, names of switches and components, system, monitor, control, program, input device, output device.*	