

Cooking and Nutrition	Mechanisms	Freestanding Structures
	Sliders and Levers	
<ul> <li>Designing         <ul> <li>Design appealing products for a particular user based on simple design criteria.</li> <li>Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.</li> <li>Communicate these ideas through talk and drawings.</li> <li>Making             <ul></ul></li></ul></li></ul>	<ul> <li>Designing</li> <li>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</li> <li>Develop, model and communicate their ideas through drawings and mock-ups with card and paper.</li> <li>Making</li> <li>Plan by suggesting what to do next.</li> <li>Select and use tools, explaining their choices, to cut, shape and join paper and card.</li> <li>Use simple finishing techniques suitable for the product they are creating.</li> <li>Evaluating</li> <li>Explore a range of existing books and everyday products that use simple sliders and levers.</li> <li>Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.</li> <li>Technical knowledge and understanding</li> <li>Explore and use sliders and levers.</li> <li>Understand that different mechanisms produce different types of movement.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>	<ul> <li>Designing</li> <li>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</li> <li>Develop, model and communicate their ideas through talking, mock-ups and drawings.</li> <li>Making</li> <li>Plan by suggesting what to do next.</li> <li>Select and use tools, skills and techniques, explaining their choices.</li> <li>Select new and reclaimed materials and construction kits to build their structures.</li> <li>Use simple finishing techniques suitable for the structure they are creating.</li> <li>Evaluating</li> <li>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</li> <li>Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</li> <li>Technical knowledge and understanding</li> <li>Know how to make freestanding structures stronger, stiffer and more stable.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>

They explain what went well

What improvements would they make?

To join in variety of ways.

To describe their design using pictures, diagrams, models and words.



	Cooking and Nutrition	Textiles – Templates and Joining	Mechanisms – Wheels and Axles
2	Designing	Designing	Designing
	Design appealing products for a particular user based on	Design a functional and appealing product for a chosen user	Generate initial ideas and simple design criteria through
	simple design criteria.	and purpose based on simple design criteria.	talking and using own experiences.
	Generate initial ideas and design criteria through	Generate, develop, model and communicate their ideas as	Develop and communicate ideas through drawings and
	investigating a variety of fruit and vegetables.	appropriate through talking, drawing, templates, mock-ups	mock-ups.
	Communicate these ideas through talk and drawings.	and information and communication technology.	Making     Select from and use a range of tools and equipment to
	Making	Making	perform practical tasks such as cutting and joining to allow
	Use simple utensils and equipment to e.g. peel, cut, slice,	Select from and use a range of tools and equipment to	movement and finishing.
	squeeze, grate and chop safely.	perform practical tasks such as marking out, cutting, joining	Select from and use a range of materials and components
	Select from a range of fruit and vegetables according to	and finishing.	such as paper, card, plastic and wood according to their
	their characteristics e.g. colour, texture and taste to create a	Select from and use textiles according to their	characteristics.
	chosen product.	characteristics.	Evaluating
	Evaluating	Evaluating	Explore and evaluate a range of products with wheels and axles.
	Taste and evaluate a range of fruit and vegetables to	Explore and evaluate a range of existing textile products	Evaluate their ideas throughout and their products against
	determine the intended user's preferences.	relevant to the project being undertaken.	original criteria.
	Evaluate ideas and finished products against design criteria,	Evaluate their ideas throughout and their final products	Technical knowledge and understanding
	including intended user and purpose.	against original design criteria.	• Explore and use wheels, axles and axle holders.
	Technical knowledge and understanding	Technical knowledge and understanding	Distinguish between fixed and freely moving axles.
	Understand where a range of fruit and vegetables come	Understand how simple 3-D textile products are made,	Know and use technical vocabulary relevant to the project.
	from e.g. farmed or grown at home.	using a template to create two identical shapes.	
	Understand and use basic principles of a healthy and varied	Understand how to join fabrics using different techniques	
	diet to prepare dishes, including how fruit and vegetables are	e.g. running stitch, glue, over stitch, stapling.	
	part of The eatwell plate.	Explore different finishing techniques e.g. using painting,	
	Know and use technical and sensory vocabulary relevant to	fabric crayons, stitching, sequins, buttons and ribbons.	
	the project.	Know and use technical vocabulary	

Can they use equipment and tools accurately?

Can they explain what they changed which made their design even better?

Can they describe their design using an accurately labelled sketch and words?

How realistic is their plan?



Co	oking and Nutrition-Healthy and varied diet (including cooking	Structures-Shell structures (including computer-aided	Textiles-2-D shape to 3-D product
	and nutrition requirements for KS2)	design)	
3	Designing	Designing	Designing
	Generate and clarify ideas through discussion with peers	Generate realistic ideas and design criteria collaboratively	Generate realistic ideas through discussion and design
	and adults to develop design criteria including appearance,	through discussion, focusing on the needs of the user and	criteria for an appealing, functional product fit for purpose
	taste, texture and aroma for an appealing product for a	the functional and aesthetic purposes of the product.	and specific user/s.
	particular user and purpose.	Develop ideas through the analysis of existing shell	Produce annotated sketches, prototypes, final product
	Use annotated sketches and appropriate information and	structures and use computer-aided design to model and	sketches and pattern pieces.
	communication technology, such as web-based recipes, to	communicate ideas.	Making
	develop and communicate ideas.	Making	Plan the main stages of making.
	Making	Plan the order of the main stages of making.	Select and use a range of appropriate tools with some
	Plan the main stages of a recipe, listing ingredients, utensils	• Select and use appropriate tools and software to measure,	accuracy e.g. cutting, joining and finishing.
	and equipment.	mark out, cut, score, shape and assemble with some	Select fabrics and fastenings according to their functional
	Select and use appropriate utensils and equipment to	accuracy.	characteristics e.g. strength, and aesthetic qualities e.g.
	prepare and combine ingredients.	Explain their choice of materials according to functional	pattern.
	Select from a range of ingredients to make appropriate food	properties and aesthetic qualities.	Evaluating
	products, thinking about sensory characteristics.	Use computer-generated finishing techniques suitable for	Investigate a range of 3-D textile products relevant to the
	Evaluating	the product they are creating.	project.
	Carry out sensory evaluations of a variety of ingredients and	Evaluating	Test their product against the original design criteria and
	products. Record the evaluations using e.g. tables and	Investigate and evaluate a range of shell structures including	with the intended user.
	simple graphs.	the materials, components and techniques that have been	Take into account others' views.
	Evaluate the ongoing work and the final product with	used.	Understand how a key event/individual has influenced the
	reference to the design criteria and the views of others.	Test and evaluate their own products against design criteria	development of the chosen product and/or fabric.
	Technical knowledge and understanding	and the intended user and purpose.	Technical knowledge and understanding
	Know how to use appropriate equipment and utensils to	Technical knowledge and understanding	Know how to strengthen, stiffen and reinforce existing
	prepare and combine food.	Develop and use knowledge of nets of cubes and cuboids	fabrics.
	Know about a range of fresh and processed ingredients	and, where appropriate, more complex 3D shapes.	Understand how to securely join two pieces of fabric
	appropriate for their product, and whether they are grown,	Develop and use knowledge of how to construct strong, stiff	together.
	reared or caught.	shell structures.	Understand the need for patterns and seam allowances.      Vacuum and was to shorted to see the project.
	Know and use relevant technical and sensory vocabulary	Know and use technical vocabulary relevant to the project.	Know and use technical vocabulary relevant to the project.
	appropriately.		
Ex	ceeding		

To be able to evaluate their product, thinking of both appearance and the way it works.

To be able to take time to consider how they could have made their idea better.

To be able to work at their product even though their original idea might not have worked.

To be able to suggest some improvements and say what was good and not so good about their original design.



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Co	oking and Nutrition-Healthy and varied diet (including cooking	Mechanical Systems – Levers and Linkages	Structures – Frame Structures
4	and nutrition requirements for KS2)  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	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	Designing     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
Ev	<ul> <li>particular user and purpose.</li> <li>Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.</li> <li>Making</li> <li>Plan the main stages of a recipe, listing ingredients, utensils and equipment.</li> <li>Select and use appropriate utensils and equipment to prepare and combine ingredients.</li> <li>Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</li> <li>Evaluating</li> <li>Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</li> <li>Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.</li> <li>Technical knowledge and understanding</li> <li>Know how to use appropriate equipment and utensils to prepare and combine food.</li> <li>Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.</li> <li>Know and use relevant technical and sensory vocabulary appropriately.</li> </ul>	<ul> <li>and communicate ideas.</li> <li>Making</li> <li>Order the main stages of making.</li> <li>Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.</li> <li>Select from and use finishing techniques suitable for the product they are creating.</li> <li>Evaluating</li> <li>Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</li> <li>Evaluate their own products and ideas against criteria and user needs, as they design and make.</li> <li>Technical knowledge and understanding</li> <li>Understand and use lever and linkage mechanisms.</li> <li>Distinguish between fixed and loose pivots.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>	<ul> <li>Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.</li> <li>Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.</li> <li>Making</li> <li>Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.</li> <li>Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</li> <li>Use finishing and decorative techniques suitable for the product they are designing and making.</li> <li>Evaluating</li> <li>Investigate and evaluate a range of existing frame structures.</li> <li>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.</li> <li>Research key events and individuals relevant to frame structures.</li> <li>Technical knowledge and understanding</li> <li>Understand how to strengthen, stiffen and reinforce 3-D frameworks.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>

## Exceeding

To be able to evaluate appearance and function against the original criteria.

To be able to explain how their product will appeal to the audience.

To be able to take a user's view into account when designing.



	Food Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Electrical Systems Simple circuits and switches (including programming and control)	Mechanical Systems Pulleys or gears
5	<ul> <li>Designing</li> <li>Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</li> <li>Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</li> <li>Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.</li> <li>Making</li> <li>Write a step-by-step recipe, including a list of ingredients, equipment and utensils</li> <li>Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</li> <li>Make, decorate and present the food product appropriately for the intended user and purpose.</li> <li>Evaluating</li> <li>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.</li> <li>Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</li> <li>Understand how key chefs have influenced eating habits to promote varied and healthy diets.</li> <li>Technical knowledge and understanding</li> <li>Know how to use utensils and equipment including heat sources to prepare and cook food.</li> <li>Understand about seasonality in relation to food products and the source of different food products.</li> <li>Know and use relevant technical and sensory vocabulary.</li> </ul>	<ul> <li>Designing</li> <li>Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose.</li> <li>Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.</li> <li>Making</li> <li>Order the main stages of making.</li> <li>Select from and use tools and equipment to cut, shape, join and finish with some accuracy.</li> <li>Connect simple electrical components and a battery in a series circuit to achieve a functional outcome.</li> <li>Program a standalone control box, microcontroller or interface box to enhance the way the product works.</li> <li>Evaluating</li> <li>Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products.</li> <li>Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> <li>Technical knowledge and understanding</li> <li>Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>	<ul> <li>Designing</li> <li>Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.</li> <li>Develop a simple design specification to guide their thinking.</li> <li>Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</li> <li>Making</li> <li>Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>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.</li> <li>Evaluating</li> <li>Compare the final product to the original design specification.</li> <li>Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>Consider the views of others to improve their work.</li> <li>Investigate famous manufacturing and engineering companies relevant to the project.</li> <li>Technical knowledge and understanding</li> <li>Understand that mechanical and electrical systems have an input, process and an output.</li> <li>Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>



#### Exceeding

To be able to evaluate their product and decide whether it has met all design criteria.

To be able to consider the use of the product when selecting materials?

To be able to justify their plan to someone else.

To be able to consider culture and society in their designs.



Food	Electrical Systems	Textiles - Combining different fabric shapes
Celebrating culture and seasonality	More complex switches and circuits (including programming,	(including computer-aided design)
(including cooking and nutrition requirements for KS2)	monitoring and control)	
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 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 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  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.  Technical knowledge and understanding  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.	Designing  Develop a design specification for a functional product that responds automatically to changes in the environment.  Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams.  Making  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 their electrical product to respond 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.  Technical knowledge and understanding  Understand and use electrical systems in their products.  Understand the use of computer control systems in products.  Apply their understanding of computing to program, monitor and control their products.  Know and use technical vocabulary relevant to the project.	<ul> <li>Designing</li> <li>Generate innovative ideas through research including surveys, interviews and questionnaires.</li> <li>Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer-aided design.</li> <li>Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.</li> <li>Making</li> <li>Produce detailed lists of equipment and fabrics relevant to their tasks.</li> <li>Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>Select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.</li> <li>Evaluating</li> <li>Investigate and analyse textile products linked to their final product.</li> <li>Compare the final product to the original design specification.</li> <li>Test products with intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>Consider the views of others to improve their work.</li> <li>Technical knowledge and understanding</li> <li>A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.</li> <li>Fabrics can be strengthened, stiffened and reinforced where</li> </ul>



Exceeding

To evaluate how well do they test and evaluate their final product.

To evaluate Is it fit for purpose.

What would improve it?

Would different resources have improved their product? Would they need more or different information to make it even better?

Does their product meet all design criteria?

Did they consider the use of the product when selecting materials?