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NUTRITION

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PURPOSE: To design, make and evaluate a Tea Party with a selection of sandwiches, for special guests **DESIGN:** Design appealing products for a particular user based on simple design criteria. Communicate these ideas through talk and drawings. Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. **MAKE:** Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. **Evaluate technical knowledge and understanding:** Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. 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	**PURPOSE:** To design, make and evaluate a healthy diet for explorers, to give energy and combat disease and illness. **DESIGN:** Design appealing products for a particular user based on simple design criteria. Communicate these ideas through talk and drawings. Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. **MAKE:** Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. **Evaluate technical knowledge and understanding:** Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. 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		**PURPOSE:** To design, make and evaluate a healthy Mediterranean diet select local produce only. **DESIGN:** Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. 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. **MAKE:** 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. Plan the main stages of a recipe, listing ingredients, utensils and equipment. **Evaluate technical knowledge and understanding:** Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. Know about a range of fresh and	**PURPOSE:** To design, make and evaluate a replica historic menu using native ingredients to Central and Southern regions of America, to inform an audience: **DESIGN:** 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. Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. **MAKE:** Write a step-by-step recipe, including a list of ingredients, equipment and utensils. Make, decorate and present the food product appropriately for the intended user and purpose. Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. **Evaluate technical knowledge and understanding:** Carry out sensory evaluations of a range of relevant products and	**PURPOSE:** To design, make and evaluate food from the Middle East celebrating and educating an audience on Islamic Culture and history of food. **DESIGN:** 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. Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. **MAKE:** Write a step-by-step recipe, including a list of ingredients, equipment and utensils. Make, decorate and present the food product appropriately for the intended user and purpose. Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. **Evaluate technical knowledge and understanding:** Carry out sensory evaluations of a range of relevant products and

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of 'The Eatwell Plate'. Know and use technical and sensory vocabulary relevant to fruit and vegetables. Evaluate ideas and finished products against design criteria, including intended user and purpose.	how fruit and vegetables are part of 'The Eatwell Plate'. Know and use technical and sensory vocabulary relevant to fruit and vegetables. Evaluate ideas and finished products against design criteria, including intended user and purpose.		processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know how to use appropriate equipment and utensils to prepare and combine food. Know and use relevant technical and sensory vocabulary appropriately. Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.	ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. Understand how key chefs have influenced eating habits to promote varied and healthy diets. Understand about seasonality in relation to food products and the source of different food products. Know how to use utensils and equipment including heat sources to prepare and cook food. Know and use relevant technical and sensory vocabulary. Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.	ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. Understand how key chefs have influenced eating habits to promote varied and healthy diets. Understand about seasonality in relation to food products and the source of different food products. Know how to use utensils and equipment including heat sources to prepare and cook food. Know and use relevant technical and sensory vocabulary. Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.

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MECHANISMS					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
PURPOSE: To design, make and evaluate a toy to bring joy and demonstrate human innovation **DESIGN:** Develop, model and communicate their ideas through drawings and mock-ups with card and paper. Generate ideas based on simple design criteria and their own experiences, explaining what they could make with sliders and levers. **MAKE:** 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. Plan by suggesting what to do next. **Evaluate technical knowledge and understanding:** Explore a range of existing books and everyday products that use simple sliders and levers. Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. Know and use technical	**PURPOSE:** To design, make and evaluate a toy to bring joy and demonstrate human innovation **DESIGN:** Develop and communicate ideas through drawings and mock-ups. Generate initial ideas and simple design criteria through talking and using own experiences of wheels and axles. **MAKE:** Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. **Evaluate technical knowledge and understanding:** Explore and evaluate a range of products with wheels and axles. Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the wheels and axles. Evaluate their ideas and products throughout.	**PURPOSE:** To design, make and evaluate a Shaduf to transport water to support a thriving civilization **DESIGN:** Develop a simple design specification to guide their thinking. Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **MAKE:** 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 are accurately assembled and well finished. Work within the constraints of time, resources and cost. **Evaluate technical knowledge and understanding:** Compare the final product to the original design specification. Consider the views of others to improve their work. Know and use technical vocabulary relevant to pulleys and gears. Understand how gears and pulleys can be used to speed up,			**PURPOSE:** To design, make and evaluate an interactive presentation to an audience with moving parts **DESIGN:** Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. Develop a more complex design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. **MAKE:** Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. Take into account time constraints and any supply chains. Use finishing and decorative techniques suitable for lever and linkages presentations they are designing and making. Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. Through an iterative process, refine more complex elements of the build **Evaluate technical knowledge and understanding:** Investigate and evaluate a range of existing frame structures.

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vocabulary relevant to sliders and leavers. Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.		slow down or change the direction of movement. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.			Research key events and individuals relevant to frame structures. Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to 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.

STRUCTURES inc. CAD					
Year 1	**Year 2**	**Year 3**	**Year 4 - CAD**	**Year 4**	**Year 5**
	PURPOSE: To design, make and evaluate a structure for people to use as a recycling point for New Brighton Promenade **DESIGN:** Develop, model and communicate their ideas through talking, mock-ups and drawings. Generate ideas based on simple design criteria and their own experiences, explaining what they could make. **MAKE:** Plan by suggesting what to do next.	**PURPOSE:** To design, make and evaluate a structure for humans to live in due to an increase in farming. Moving from surviving to thriving **DESIGN:** Experience of using different joining, cutting and finishing techniques with paper and card. A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science. **MAKE:** Select and use appropriate tools to measure, mark out, cut, score,	**PURPOSE:** To design, make and evaluate a structure to encase rare Roman artefacts for protection and preservation **DESIGN:** Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas. 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.	**PURPOSE:** To design, make and evaluate a structure to house people of living near the Ganges in the Himalayas from flooding **DESIGN:** Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.	**PURPOSE:** To design, make and evaluate a ecological structure to can be used to protect coastlines and infrastructure **DESIGN:** Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. Develop a simple design specification, specifically focused on strengthening sea defences, to guide the development of their ideas and products, taking account of constraints including time, resources and cost.

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	Select new and reclaimed materials and construction kits to build their structures. Use simple finishing techniques suitable for the structure they are creating. Select and use tools, skills and techniques, explaining their choices. **Evaluate technical knowledge and understanding:** Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to freestanding structures. Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.	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. Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. **Evaluate technical knowledge and understanding:** Test and evaluate their own products against design criteria and the intended user and purpose. 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.	**MAKE:** Plan the order of the main stages of making. Explain their choice of materials according to functional properties and aesthetic qualities. Use computer-generated finishing techniques suitable for the product they are creating. Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. **Evaluate technical knowledge and understanding:** Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. 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 computer aided design. Test and evaluate their own products against design criteria and the intended user and purpose.	**MAKE:** Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. Use finishing and decorative techniques suitable for the product they are designing and making. Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. **Evaluate technical knowledge and understanding:** Investigate and evaluate a range of existing frame structures. Research key events and individuals relevant to frame structures. Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to frame structures. Evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.	**MAKE:** Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. Select a range of materials that will suitably test the strength of the structure Select from and use appropriate tools to make a coastal protection structure **Evaluate technical knowledge and understanding:** Investigate and evaluate a range of existing coastal protection structures. Research key events to testing coastal protection structures. Know and use technical vocabulary relevant to coastal protection structures. Evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.

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TEXTILES					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	PURPOSE: To design, make and evaluate a environmentally friendly bags to support climate change causes **DESIGN:** 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. **MAKE:** Select from and use textiles according to their characteristics. Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. **Evaluate technical knowledge and understanding:** Explore and evaluate a range of existing textile products relevant to the project being undertaken. Understand how simple 3-D textile products are made, using	**PURPOSE:** To design, make and evaluate a environmentally friendly clothes fashioned from recycled materials **DESIGN:** 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. **MAKE:** Plan the main stages of making. Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. **Evaluate technical knowledge and understanding:** Investigate a range of 3-D textile products relevant to the project.			

	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 templates and joining. Evaluate their ideas throughout and their final products against original design criteria.	Test their product against the original design criteria and with the intended user. Take into account others' views. 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 2D and 3D textile shapes. Understand how a key event/individual has influenced the development of the chosen product and/or fabric.			

ELECTRICAL SYSTEMS					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
				PURPOSE: To design, make and evaluate a wind turbine to harness the power of the wind, to help tackle climate change **DESIGN:** Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose.	**PURPOSE:** To design, make and evaluate a flood defence alert computer program to protect the people surrounding the MIssissippi. **DESIGN:** 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.

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				MAKE: Order the main stages of making. Connect simple electrical components and a battery in a series circuit to achieve a functional outcome. Program a standalone control box, microcontroller or interface box to enhance the way the product works. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. **Evaluate technical knowledge and understanding:** Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products. Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers. Know and use technical vocabulary relevant to programming and control. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. **MAKE:** 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. **Evaluate technical knowledge and understanding:** 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.