



SJS Target Grid Design and Technology



Year 3	Developing, planning and communicating ideas		Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
	- I can show that my design meets a range of requirements. - I can put together a step-by-step plan which shows the order and also what equipment I need. - I can describe my design using an accurately labelled sketch.		I can use equipment and tools accurately.	I can explain what I changed to make my design even better.
	Breadth of Study			
	Cooking and nutrition (Cycle B) 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. - Use annotated sketches and appropriate information and communication technology, such as web-based 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	Textiles (Cycle B) 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	Elec and Mech components Cycle A Designing - Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose. - Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Making - Order the main stages of making. - Select from and use tools and equipment to cut, shape, join and finish with some accuracy. - 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. Evaluating - Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products. - Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Technical knowledge and understanding - 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 the project.	Structures Cycle A Designing - 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. Making - 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. Evaluating - Investigate and evaluate a range of existing shell structures

	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. Technical knowledge and understanding - 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.	aesthetic qualities e.g. pattern. Evaluating - 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. Technical knowledge and understanding - 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.	Cycle B 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, cross-sectional and exploded 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. 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. Technical knowledge and 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.	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. Technical knowledge and understanding - 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.
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Year 4	Developing, planning and communicating ideas		Working with tools, equipment, materials and components to make quality products		Evaluating processes and products	
	- I can come up with at least one idea about how to create my product. - I can take account of the ideas of others when designing. - I can produce a plan and explain it to others. - I have thought of how I will check if my design is successful.		- I can tell if my product is going to be good quality. - I am conscience of the need to produce something that will be liked by others. - I can show a good level of expertise when using a range of tools and equipment. - I can work at my product even though my original idea might have failed.		- I can suggest some improvements and say what was good and not so good about my original design. - I can evaluate my product, thinking of both appearance and the way it works. - I can take time to consider how I could have made my idea better.	
	Breadth of Study					
	Cooking and nutrition (Cycle B)		Textiles (Cycle B)		Elec and Mech components Cycle A	
	Structures Cycle A					
	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. - Use annotated sketches and appropriate information and communication technology, such as web-based 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	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 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.	Designing - Gather information about users’ needs and wants, and develop design criteria to inform the design of products that are fit for purpose. - Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Making - Order the main stages of making. - Select from and use tools and equipment to cut, shape, join and finish with some accuracy. - 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. Evaluating - Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products. - Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Technical knowledge and understanding - 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 the project.	Designing - 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. Making - 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. Evaluating - Investigate and evaluate a range of existing shell structures		

	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. Technical knowledge and understanding • 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.	• Understand how a key event/individual has influenced the development of the chosen product and/or fabric. Technical knowledge and understanding • 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.	Cycle B 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, cross-sectional and exploded 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. 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. Technical knowledge and 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.	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. Technical knowledge and understanding • 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. ▪
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	Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
	- I can come up with a range of ideas after I have collected information. - I can take a user's view into account when designing. - I can produce a detailed step-by-step plan. - I can suggest an alternative plan and say what the good points and drawbacks are about it.	- I can explain why my finished product is going to be of good quality. - I can explain how my product will appeal to the audience. - I can use a range of tools and equipment expertly. - I can persevere through different stages of the making process.	- I can keep checking that my design is the best it can be. - I can check whether anything could be improved. - I can evaluate appearance and function against the original criteria.
	Breadth of Study		
Year 5	Textiles Designing - Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. - Develop, model and communicate ideas through talking, drawing, templates, mock-ups 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 - Produce detailed lists of equipment and fabrics relevant to their tasks. - 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. Evaluating - Investigate and analyse textile products linked to their final product. - Compare the final product to the original design specification.	Elec and Mech components Designing - Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. - Develop a simple design specification to guide their thinking. - Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. Making - 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. 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.	Structures 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 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 step-by-step 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. 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

	• 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. Technical knowledge and understanding • 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.	Technical knowledge and understanding • 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. ▪ Know and use technical vocabulary relevant to the project. ▪	structures. Technical knowledge and understanding • Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project.
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Year 6	Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
	▪ I can use a range of information to inform my design. ▪ I can use market research to support my plans. ▪ I can follow and refine my plan if necessary. ▪ I can justify my plan to someone else. ▪ I can consider the exact needs of my target audience in my designs.	▪ I can use tools and materials precisely. ▪ I can change the way I am working if needed. ▪ I can work within time and/or financial constraints.	▪ I can test and evaluate my final product. ▪ I can say if my product is fit for purpose or not. ▪ I can describe what I would do to improve it. ▪ I can explain how different resources might have improved my product. ▪ I can determine if my product met all of the design criteria or not.
	Breadth of Study		
	Cooking and nutrition 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	Textiles Designing • Generate innovative ideas through research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer-aided 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 step-by-step plans and, if appropriate, allocate tasks within a team.	Elec and Mech components 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 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.

	• 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. • Know and use relevant technical and sensory vocabulary.	• 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. 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, 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. Technical knowledge and understanding • 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.	• 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 ground-breaking electrical systems and components. Technical knowledge and understanding • 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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