St. Catherine's
RC Primary School

Subject Progression: Design Technology

Be who God wants you to be and so set the world on fire

0161 445 6359
admin@st-catherines.manchester.sch.uk
www.st-catherines.manchester.sch.uk
www.facebook.com/stcatherinesrcprimary

Overview of Learning Topics

Subject	Autumn	Spring	Summer
EYFS	Cycle 1- Fairy Tales, People Who Help Us Cycle 2- All About Me, Superheroes	Cycle 1- Cold Places, Space Cycle 2- Dinosaurs, Food And Growth	Cycle 1- Animals, Holidays And The Sea Cycle 2- Mini-Beasts, Journeys And Transport
Year 1		Mechanisms- Slides and Levers	Structures- Freestanding Structures
Year 2	Textiles- Templates and Joining	Food- Preparing Fruit and Vegetables	Mechanisms- Wheels and Axles
Year 3	Structures- Shell Structures	Mechanical Systems- Levers and Linkages	Textiles- 2D shape to 3D Product
Year 4	Food- Healthy and Varied Diet	Structures- Shell Structures using Computer-Aided Design	Electrical Systems- Simple Programming and Controlling
Year 5	Structures- Frame Structures	Textiles- Combining different Fabric Shapes	Mechanical Systems- Pulleys or Gears
Year 6	Electrical Systems- Monitoring and Control	Food- Celebrating Culture and Seasonality	Textiles- Using computer Aided- Design in Textiles

Subject Progression Document: Design Technology

EYFS			
Birth to Three	Physical Development		Develop manipulation and control. Explore different materials and tools.
	Expressive Art & Design		Start to make marks intentionally. Explore paint, using fingers and other parts of their bodies as well as brushes and other tools. Express ideas and feelings through making marks, and sometimes give a meaning to the marks they make. Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. Use their imagination as they consider what they can do with different materials. Make simple models which express their ideas.
Three & Four-Year- Olds	Physical Development		Use large-muscle movements to wave flags and streamers, paint and make marks. Choose the right resources to carry out their own plan. Use one-handed tools and equipment, for example, making snips in paper with scissors. Use a comfortable grip with good control when holding pens and pencils.
	Expressive Art & Design		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 to use to express them. Join different materials and explore different textures. Create closed shapes with continuous lines, and begin to use these shapes to represent objects. Draw with increasing complexity and detail, such as representing a face with a circle and including details. Use drawing to represent ideas like movement or loud noises. Show different emotions in their drawings and paintings, like happiness, sadness, fear, etc. Explore colour and colour-mixing.
Children in Reception	Physical Development		Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.
	Expressive Art & Design		Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.
Early Learning Goals	Physical Development	Fine Motor Skills	Use a range of small tools, including scissors, paintbrushes and cutlery.
	Expressive Art & Design	Creating with Materials	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.

Subject Progression Document: Design Technology

Subject	Year 1 Mechanisms – Slides and Levers	Year 1 Structures – Freestanding Structures
Research	Children explore and evaluate a collection of books and everyday products that have moving parts, including those with levers and sliders. e.g. What is it? Who is it for? What is it for? Use questions to develop children's understanding e.g. What do you think will move? How will you make it move? What part of the product moved and how did it move? How do you think the mechanism works? What else could move in the product? How well does it work? Introduce and develop vocabulary e.g. lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, in, out.	Go on a walk and/or look at photographs of the local area to explore structures such as playground equipment, street furniture, walls, towers and bridges e.g. What are the structures called and what is their purpose? Who might use them? What materials have been used? Why have these been chosen? How have the parts been joined together? How have the structures been made strong enough? How have they been made stable? Where possible, ask the children to draw or photograph the structures they have been exploring and label with the correct technical vocabulary in relation to the structure, materials used and shapes e.g. wall, tower, framework, base, joint, metal, wood, plastic, brick, triangle, square, rectangle, cuboid, cube.
Designing	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through drawings and mock-ups with card and paper.	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through talking, mock-ups and drawings.
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.	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 books and everyday products that use simple sliders and levers. Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. .	Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria
Technical Knowledge and Understanding	Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. Know and use technical vocabulary relevant to the project.	Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project.

Subject Progression Document: Design Technology

Subject	Year 2 Textiles – Templates and Joining	Year 2 – Food- Preparing Fruit and Vegetables	Year 2 – Mechanism- Wheels and Axels
Research	Children investigate and evaluate existing products linked to the chosen project. Explore and compare e.g. fabrics, joining techniques, finishing techniques and fastenings used. Use questions to develop children's understanding e.g. How many parts is it made from? What is it joined with? How is it finished? Why do you think these joining techniques have been chosen? How is it fastened? Who might use it and why? Make drawings of existing products, stating the user and purpose. Identify and label, if appropriate, the fabrics, fastenings and techniques used.	Children examine a range of fruit/vegetables. Use questions to develop children's understanding e.g. *What is this called? Who has eaten this fruit/vegetable before? Where is it grown? When can it be harvested? What are its taste, smell, texture and appearance? What will it look like if we peel it or cut it in half? What are the different parts called?* Provide opportunities for children to handle, smell and taste fruit and vegetables in order to describe them through talking and drawing. e.g. *What words can we use to describe the shape, colour, feel, taste?* Evaluate existing products to determine what the children like best; provide opportunities for the children to investigate preferences of their intended users/suitability for intended purposes e.g. *What do you prefer and why? What might we want to include in our product to meet our user's preferences? Which fruit/vegetables might be the best for our product to match the occasion/purpose?*	Explore and evaluate a range of wheeled products such as toys and everyday objects. Through questioning, direct children's observations e.g. the number, size, position and methods of fixing wheels and axles. *How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round?* Draw an example of a wheeled product, stating the user and purpose, and labelling the main parts e.g. body, chassis, wheels, axles and axle holders. Walk around the school building and grounds, recording how wheels and axles are used in daily life. Read a story or non-fiction book that includes a wheeled product. Use this to introduce relevant vocabulary and to emphasise user and purpose.
Designing	Design a functional and appealing product for a chosen user and purpose based on simple design criteria. Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.	Design appealing products for a particular user based on simple design criteria. Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. Communicate these ideas through talk and drawings.	Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through drawings and mock-ups.
Making	Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. elect from and use textiles according to their characteristics.	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.	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 range of existing textile products relevant to the project being undertaken. Evaluate their ideas throughout and their final products against original design criteria.	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.	Explore and evaluate a range of products with wheels and axles. Evaluate their ideas throughout and their products against original criteria.
Technical Knowledge and Understanding	Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.	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.	Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.

Subject Progression Document: Design Technology

Subject	Year 3 – Structures- Shell Structures	Year 3 Mechanical Systems – Levers and Linkages	Year 3 Textiles – 2D shape to 3D product
Research	Children investigate a collection of different shell structures including packaging. Use questions to develop children's understanding e.g. *What is the purpose of the shell structure – protecting, containing, presenting? What material is it made from? How has it been constructed? Are the materials recyclable or reusable? How has it been stiffened i.e. folded, corrugated, ribbed, laminated? What size/shape/colour is it? What information does it show and why? How attractive is the design?* Children take a small package apart identifying and discussing parts of a net including the tabs e.g. *How are different faces of the package arranged? How are the tabs used to join the 'free' edges of the net?* Evaluate existing products to determine which designs children think are the most effective. Provide opportunities for the children to judge the suitability of the shell structures for their intended users and purposes. Discuss graphics including colours/impact of style/logo/size of font e.g. *What do you prefer and why? What style of graphics and lettering might we want to include in our product to meet users' preferences and its intended purpose? Which packaging might be the best for…?*	Children investigate, analyse and evaluate books and, where available, other products which have a range of lever and linkage mechanisms. Use questions to develop children's understanding e.g. Who might it be for? What is its purpose? What do you think will move? How will you make it move? What part moved and how did it move? How do you think the mechanism works? What materials have been used? How effective do you think it is and why? What else could move?	Children investigate a range of textile products that have a selection of stitches, joins, fabrics, finishing techniques, fastenings and purposes, linked to the product they will design, make and evaluate. Think about products from the past and what changes have been made in textile production and products e.g. the invention of zips and Velcro. Give children the opportunity to disassemble appropriate textiles products to gain an understanding of 3-D shape, patterns and seam allowances. Use questioning to develop understanding e.g. What is its purpose? Which one is most suited to its purpose? What properties/characteristics does the fabric have? Why has this fabric been chosen? How has the fabric been joined together? How effective are its fastenings? How has it been decorated? Does its decoration have a purpose? What would the 2-D pattern piece look like? What are its measurements? How might you change the product?
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.	Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. Use annotated sketches and prototypes to develop, model and communicate ideas.	Generate 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	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.	Order the main stages of making. Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. Select from and use finishing techniques suitable for the product they are creating	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 and evaluate a range of existing shell structures including the materials, components and techniques that have be en used. Test and evaluate their own products against design criteria and the intended user and purpose.	Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make.	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	Develop and use knowledge of how to construct strong, stiff shell structures. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Know and use technical vocabulary relevant to the project.	Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project.	Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Understand the need for patterns and seam allowances. Know and use technical vocabulary relevant to the project.

Subject Progression Document: Design Technology

Subject	Year 4 Food – Healthy and Varied Diet	Year 4 – Structures- Shell Structures using CAD	Year 4 Electrical Systems – Simple Programming and Control
Research	Gather information about existing products available relating to your product using the internet. Research a professional chef and what they are famous for. Research the ingredients they use to make their finished product.	Children investigate a collection of different shell structures including packaging. Use questions to develop children's understanding e.g. What is the purpose of the shell structure – protecting, containing, presenting? What material is it made from? How has it been constructed? Are the materials recyclable or reusable? How has it been stiffened i.e. folded, corrugated, ribbed, laminated? What size/shape/colour is it? What information does it show and why? How attractive is the design? Children take a small package apart identifying and discussing parts of a net including the tabs e.g. How are different faces of the package arranged? How are the tabs used to join the 'free' edges of the net? Evaluate existing products to determine which designs children think are the most effective. Provide opportunities for the children to judge the suitability of the shell structures for their intended users and purposes. Discuss graphics including colours/impact of style/logo/size of font e.g. What do you prefer and why? What style of graphics and lettering might we want to include in our product to meet users' preferences and its intended purpose? Which packaging might be the best for…?	Discuss, investigate and, where practical and safe, disassemble different examples of relevant battery-powered products, including some programmable and programmed commercially available products e.g. Where and why the products are used? How do they work? What are the key features and components? How does the switch work? Is the product manually controlled or controlled by a computer? If it is controlled by a computer how does that improve the way the product works? What materials have been used and why? How is it suited to its intended user and purpose? Ask children to investigate examples of switches, including those which are commercially available, which work in different ways e.g. push-to-make, push-to-break, toggle switch. Let the children use them in simple circuits e.g. How might different types of switches be useful in different types of products? How might different output devices be used? Remind children about the dangers of mains electricity.
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.	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 computer- aided design to model and communicate ideas.	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	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.	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 computer-generated finishing techniques suitable for the product they are creating.	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	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.	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.	nvestigate 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	now 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.	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.	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.

Subject Progression Document: Design Technology

Subject	Year 5 Structures – Frame Structures	Year 5 Textiles – Combining Different Fabric Shapes	Year 5 Mechanical Systems – Pulleys or Gears
Research	Children investigate and make annotated drawings of a range of portable and permanent frame structures, e.g. tents, bus shelters, umbrellas. Use photographs and web-based research to extend the range e.g. *How well does the frame structure meet users' needs and purposes? Why were materials chosen? What methods of construction have been used? How has the framework been strengthened, reinforced and stiffened? How does the shape of the framework affect its strength? How innovative is the design? When was it made? Who made it? Where was it made?* Children could research key events and individuals related to their study of frame structures e.g. Stephen Sauvestre – a designer of the Eiffel Tower; Thomas Farnolls Pritchard – designer of the Iron Bridge. They could also learn about locally important design and technology activity related to their project.	Children investigate, analyse and evaluate a range of existing products which have been produced by combining fabric shapes. Investigate work by designers and their impact on fabrics and products. Use questions to develop children's understanding e.g. *Is the product functional or decorative? Who would use this product? What is its purpose? What design decisions have been made? Do the textiles used match the intended purpose? What components have been used to enhance the appearance? To what extent is the design innovative?* Children investigate and analyse how existing products have been constructed. Children disassemble a product and evaluate what the fabric shapes look like, how the parts have been joined, how the product has been strengthen and stiffened, what fastenings have been used and why. Children investigate properties of textiles through investigation e.g. exploring insulating properties, water resistance, wear and strength of textiles.	Investigate, analyse and evaluate existing everyday products and existing or pre-made toys that incorporate gear or pulley systems. Use videos and photographs of products that cannot be explored through first-hand experience. Use observational drawings and questions to develop understanding of each product in the collection e.g. How innovative is the product? What design decisions have been made? What type of movement can be seen? What types of mechanical components are used and where are they positioned? What are the input, process and output of the system? How well does the product work? Why have the materials and components been chosen? How well has it been designed? How well has it been made? Children could research and, if possible, visit engineering and manufacturing companies that are relevant to the product they are designing and making e.g. Jaguar Land Rover, JCB, local companies
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.	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	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	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.	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.	Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.
Evaluating	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.	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.	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.
Technical Knowledge and Understanding	Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.	A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate.	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.

Subject Progression Document: Design Technology

Subject	Year 6 Electrical Systems – Monitoring and Control	Year 6 Food – Celebrating Culture and Seasonality	Year 6 Textiles – Using Computer Aided Design in Textiles
Research	Discuss a range of relevant products (such as nightlights, garden lights, alarm systems, security lighting, electronic moneyboxes) that respond to changes in the environment using a computer control program e.g. Why is a computer control program used to operate the products? What are the advantages of using computer control? What input devices, e.g. switches, and output devices, e.g. bulbs and buzzers, have been used? Who have the products been designed for and for what purpose? Investigate sensors such as light dependent resistors (LDRs) and a range of switches such as push-to-make, push-to-break, toggle, micro and reed switches. To gain an understanding of how they are operated by the user and how they work, ask the children to use each component to control a bulb in a simple circuit. Remind children about the dangers of mains electricity. Children could research famous inventors related to the project e.g. Thomas Edison – light bulb.	Children use first hand and secondary sources to carry out relevant research into existing products to include personal/cultural preferences, ensuring a healthy diet, meeting dietary needs and the availability of locally sourced/seasonal/organic ingredients. This could include a visit to a local bakery, farm, farm shop or supermarket e.g. What ingredients are sourced locally/in the UK/from overseas? What are the key ingredients needed to make a particular product? How have ingredients been processed? What is the nutritional value of a product? Children carry out sensory evaluations of a variety of existing food products and ingredients relating to the project. The ingredients could include those that could be added to a basic recipe such as herbs, spices, vegetables or cheese. These could be locally sourced, seasonal, Fair Trade or organic. Present results in e.g. tables/graphs/charts and by using evaluative writing. Use a range of questions to support children's ability to evaluate food ingredients and products e.g. What ingredients help to make the product spicy/crisp/crunchy etc? What is the impact of added ingredients/finishes/shapes on the finished product? Research key chefs and how they have promoted seasonality, local produce and healthy eating.	Children investigate and evaluate a range of existing textiles products and how they have been constructed using disassembly, and evaluate what the fabric shapes look like, how the parts have been joined, how the product has been strengthened and stiffened, what fastenings have been used and why. Investigate work by designers and their impact on fabrics and products. Use questions to develop understanding e.g. Is the product functional or decorative? Who would use this product? What is its purpose? What design decisions have been made? Do the textiles used match the intended purpose? How has it been made? What has been used to enhance the appearance? Is the design innovative? Children investigate properties of textiles through investigation e.g. exploring insulating properties, water resistance, wear and strength of textiles.
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.	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.	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	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.	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.	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, including CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

Subject Progression Document: Design Technology

Subject	Year 6 Electrical Systems – Monitoring and Control	Year 6 Food – Celebrating Culture and Seasonality	Year 6 Textiles – Using Computer Aided Design in Textiles
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.	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.	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	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.	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.	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.