Design and Technology - Curriculum Overview

Design & Technology at St Thomas's Primary School

Intent	Design and Technology is an inspiring, innovative and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At St. Thomas' CE Primary School, we encourage children to use their creativity and imagination, to design and make products that solve real life problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to link work to other subject areas, and draw on skills from disciplines, such as mathematics, science, engineering, computing and art. DT aims to encourage children to take risks, to develop new innovative designs and to be reflective learners by giving them opportunities to evaluate their own work, as well as the design and work of others within school and the wider world. Children are given time to test their own products and plan for making adjustments which enables them to change their designs and improve their end product.
Implement	Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. The children design and create products that consider function and purpose and which are relevant to a range of sectors (for example, the home, school, leisure, culture, enterprise, industry and the wider environment). Key skills and key knowledge for DT have been mapped across the school to ensure progression across year groups. The context for the children's work in Design and Technology is also well considered and provides deeper learning opportunities based on learning in other areas of the curriculum.
Impact	By the time children leave our school they will have: • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. • A thorough knowledge of which tools, equipment and materials to use to make their products. • The ability to apply mathematical knowledge and skills accurately. • The ability to manage risks exceptionally well to manufacture products safely and hygienically. • A passion for the subject.
Context	**"I come that they might have life and life in all its fullness." The Gospel of John 10 v 10** We are a school of faith and as Christians, believe that God created the world. As designers, we look at God's creations and move forward to be creators ourselves. Creation is an essential aspect of life because it involves doing, living, and thinking. Designing and making gives us the opportunity to share our thoughts, visions, ideas and to express ourselves. 'Let your light shine' Matthew 5:16

Learning and Growing in the Sight of God

Learning	Growing	Sight of God
		
To understand the value of perseverance, the children hold on to their faith and focus. We recognise that we may make marvellous mistakes which will support us in the iterative process of designing and making to improve our final product. We reflect on our own learning and the learning of others.	Being a designer motivates us to express our ideas. Working collaboratively on projects with others can help the children feel inspired and give them pleasure and happiness. It can allow the children to grow together.	Our church is at the centre of our community and our school. We link our Christian Values throughout our curriculum and work and learn together in the sight of God. Being a designer can be an expression of our Christian faith in that we can work with and respect our God-Given Gifts.

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Substantive Knowledge

Substantive knowledge refers to the residual knowledge that children should take away from the unit after it has been taught.
At St Thomas's, we study five areas of Design & Technology in accordance with The National Curriculum and using guidance from the Design And Technology Association (DATA). These areas are revisited and built upon in subsequent years to aid progression and retention in both knowledge and skills in each of the disciplines.
The areas of study are; Structures, Mechanisms, Food & Nutrition, Textiles and Electrical Systems.

Disciplinary

Disciplinary knowledge in Design & Technology is the process of enabling children to use their substantive knowledge of products and materials around them to make links between and across different areas of the curriculum.
Disciplinary knowledge includes all the skills that children will need to develop over time in their DT lessons. It is taught by giving children the opportunity to explore existing products and evaluating these, before following a design brief to design and make their own improved product.
It is based on the knowledge of four key elements of the process of design: Design, Make, Evaluate and Technical Knowledge. All of these elements are taught in all year groups.

Design 	Know how to design a product that is purposeful, functional and appealing to a specific group.
Make 	Know how to safely and carefully cut, join and finish a range of materials, ranging from paper to wood.
Evaluate 	Know how to investigate, evaluate and analyse a range of products and their own designs based on specific criteria.
Technical knowledge 	Know how to apply their knowledge of materials to meet the criteria above in the design, make and evaluate stages. Use technical vocabulary with confidence and accuracy.

Design and Technology - Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	All About Me Joy	Our Wonderful World Compassion	Ticket to Ride Joy	Come outside Joy	Our Heroes	Fun at the Seaside Joy
Reception	All About Me Joy	Our Wonderful World Compassion	Ticket to Ride Joy	Come outside Joy	Our Heroes	Fun at the Seaside Joy
Year 1		Food & Nutrition Fruit Kebabs Joy		Mechanism Moving Pictures Perseverance		Mechanism Wheels & Axels Perseverance
Year 2		Textiles Joy		Food & Nutrition Joy		Structures Perseverance
Year 3		Mechanisms Pop-up Cards Perseverance/ Joy		Food & Nutrition Healthy Sandwiches Joy		Structures Famous Buildings Community
Year 4		Food & Nutrition Greek Salads Joy		Electrical Systems Lamps Perseverance		Textiles Explorer Bags Community
Year 5		Mechanisms Cam Toys Perseverance		Food & Nutrition Soup Joy		Structures Playground Shelters Community
Year 6		Textiles Puppets Perseverance		Food & Nutrition Bake Off Joy		Electrical Systems Perseverance

Design and Technology - Curriculum Overview

Nursery	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
General Theme	All About Me!	Our Wonderful World	Ticket to Ride	Come Outside	Our Heroes	Fun at the Seaside
Hook Book - A	What makes Me am Me! Ben Faulkes	Meerkat Christmas Emily Gravett	Naughty Bus Jan and Jerry Oke	Giganotosurus Johnny Duddle	The Pirates are coming John Condon	The Sea Saw Tom Percival
Hook Book- B						

Expressive Art and Design is a Specific Area of Learning.

Creativity plays a significant role in thinking and understanding across all seven areas of learning. If children's thoughts and feelings are sought and valued and they are encouraged to decide for themselves how best to represent their ideas, explore possibilities, make new connections and solve problems, they are developing the skills for life-long learning and confidence in themselves, both as thinkers and as learners.

The characteristics of effective teaching and learning are essential in supporting learning and development in Expressive Arts and Design, empowering children to see themselves as capable, competent and creative learners. To be creative and explore, children need to feel emotionally secure so that they have the confidence to take risks. The quality of children's indoor and outdoor learning environment is of critical importance in promoting their creativity and imagination. Early Years settings can support children by encouraging them to explore and experience a broad, rich range of materials, media, music, stories, technology and design. It is vital that all practitioners value and respect children's processes as these are as important as their end products, their new ideas and different ways of doing things, and their interests, thoughts and feelings.

Making Skills	Creates my own piece of art -picture or model.	Creates my own piece of art and gives meaning.	Creates my own piece of art with some details, and I begin to self-correct any mistakes.
Sewing	I can explore holding a sewing needle.	I can begin to use the skill of sewing over and under to make a running stitch with 1:1 support.	
DT Progression for planning my ideas	I can work with independence to try and develop basic skills.	I can develop and share my ideas with support from my peers or an adult.	
DT Progression for constructing my ideas.	I can build by stacking vertically.	I can join construction components by pushing, clicking, twisting, and snapping.	I can make enclosed spaces and shapes such as walls, tunnels, and houses. I build horizontally. I can tesselate basic shapes.
DT Progression for sculpting.	I can explore the clay/ dough.	I can make marks in the clay/ dough.	I can manipulate the clay/ dough by squashing, rolling, pinching, twisting and cutting.
DT Progression for using scissors.	I can hold the scissors with two hands, and I am learning how the blades close and open	I can hold the scissors and open and close the blades	I can make small snips into the paper.
DT Progression for joining techniques.	Uses glue sticks to join pieces.	Uses glue spatulas and pva glue to join pieces. I know that this is stronger than using the glue stick.	Joins items using tapes - masking and Sellotape - cutting lengths needed.
DT Progression for making.	Creates my own piece of art -picture or model.	Creates my own piece of art and gives meaning.	Creates my own piece of art with some details, and I begin to self-correct any mistakes.
DT Progression for cooking.	I can begin to develop a food vocabulary using taste, smell, texture and feel.	I can stir, spread, knead and shape a range of food and ingredients.	
Characteristics of Effective Learning (Disciplinary Knowledge – skills we need to learn)	**Playing and Exploring** – Children investigate and experience things and have a go. Children who actively participate in their own play develop a larger store of information and experience to draw on which positively supports their learning. **Active Learning** – Children concentrate and keep on trying if their encounter difficulties. They are proud of their own achievements. For children to develop into self-regulating lifelong learners they are requires to take ownership, accept challenges and learn persistence. **Creating and thinking critically -** Children develop their own ideas and make links between these ideas. They think flexibly and rationally, drawing on previous experiences which help them to solve problems and reach conclusions.		
Protected Characteristics			

Design and Technology - Curriculum Overview

Nursery	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
General Theme	All About Me!	Our Wonderful World	Ticket to Ride	Come Outside	Our Heroes	Fun at the Seaside
Hook Book - A	What makes Me am Me! Ben Faulkes	Meerkat Christmas Emily Gravett	Naughty Bus Jan and Jerry Oke	Giganotosurus Johnny Duddle	The Pirates are coming John Condon	The Sea Saw Tom Percival
Hook Book- B						
Enhanced Provision						
Topic Time DEAL						
Experiential Opportunities						

Design and Technology - Curriculum Overview

Reception	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
General Theme	All About Me!	Our Wonderful World	Ticket to Ride	Come Outside	Our Heroes	Fun at the Seaside
Hook Book - A	What makes Me am Me! Ben Faulkes	Meerkat Christmas Emily Gravett	Naughty Bus Jan and Jerry Oke	Giganotosurus Johnny Duddle	The Pirates are coming John Condon	The Sea Saw Tom Percival
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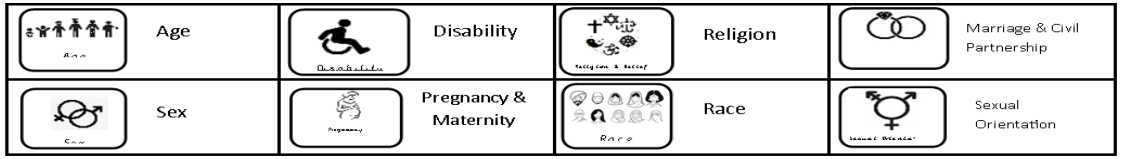
Making Skills	Creates my own piece of art with some details, and I begin to self-correct any mistakes.	I return to my piece of artwork on another occasion to edit and improve my model. I add details and features to enhance my model.	I review my own work. I discuss strengths and areas for improvement. I make considered improvements.
Sewing	I can begin to use the skill of sewing over and under to make a running stitch with some support.	I can complete some running stitches and work independently.	I can independently sew a series of running stitches independently, and I can attempt a cross stitch with support.
DT Progression for planning my ideas	I work with my friend, and we copy, share, and develop ideas together. I can work independently to develop my ideas.	I can plan and create collaboratively, sharing my ideas with my peers and developing my ideas further.	I can carefully develop and share my ideas, experiences, and imagination independently or collaboratively.
DT Progression for constructing my ideas.	I can cover and bridge in my constructions by adding towers, roofs, bridges, and more detailed features. I can balance items. I can explore and add moving parts to my constructions.	I can adapt and improve my models with added features. I add improvements to ensure stability, scale and that it fits the purpose.	I can design, build, review and adapt my constructions to ensure they fit the purpose. I combine materials, shapes, and textures to add details and complexity. I can work on a large and small scale.
DT Progression for sculpting.	I can make something and give meaning to it.	I can make something with clear intentions from start to finish.	I use a variety of techniques, shapes and shapes to sculpt.
DT Progression for using scissors.	I can cut along a straight line, and I am improving in accuracy.	I can cut a curved line. I can cut a circle shape, cutting around the shape with round edges. I can cut out a square shape.	I can cut around complex shapes such as people.
DT Progression for joining techniques.	Joins items in a variety of ways, sellotape, hole punches, string, glue, masking tape and ribbon.	Joins items which are cut, torn and glued. Uses techniques such as flanges, slots, braces, tabs and ties, with some support.	Joins items using hot glue guns. Joins items using hammers and nails.
DT Progression for making.	Creates my own piece of art with some details, and I begin to self-correct any mistakes.	I return to my piece of artwork on another occasion to edit and improve my model. I add details and features to enhance my model.	I review my own work. I discuss strengths and areas for improvement. I make considered improvements.
DT Progression for cooking.	I can stir, spread, knead and shape a range of food and ingredients.	I can begin to work safely and show basic hygiene awareness, e.g., washing hands.	I can measure and weigh food items, non-standard measures, e.g., spoons, cups.
Characteristics of Effective Learning (Disciplinary Knowledge – skills we need to learn)	**Playing and Exploring** – Children investigate and experience things and have a go. Children who actively participate in their own play develop a larger store of information and experience to draw on which positively supports their learning. **Active Learning** – Children concentrate and keep on trying if their encounter difficulties. They are proud of their own achievements. For children to develop into self-regulating lifelong learners they are requires to take ownership, accept challenges and learn persistence. **Creating and thinking critically** - Children develop their own ideas and make links between these ideas. They think flexibly and rationally, drawing on previous experiences which help them to solve problems and reach conclusions.		
Protected Characteristics			

Design and Technology - Curriculum Overview

Reception	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
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Hook Book- B						
Enhanced Provision						
Topic Time DEAL						
Experiential Opportunities	Park visit – tree study Asda shop visit Autumn Trail Harvest Tine	Guy Fawkes / Bonfire Night Diwali Hanukkah	Bus ride to Hazel Grove Valentine's Day	Planting seeds Lent Easter Time Weather experiments Mother's Day Easter Egg Hunt Park visit – observational	Post a wanted sign Food tasking Walk to the park – observe changes	Ice cream at the park Fossil Hunting Pirate Day Map work – find the treasure Healthy Eating Week

Design and Technology - Curriculum Overview

Year 1	Autumn Food and Nutrition Fruit Kebabs	Spring Mechanism Moving Pictures	Summer Mechanism Wheels and Axles
Enquiry Question	Can you make a tasty snack for the rein-deer?	What do you do if you get lost in the woods?	What will you travel on for your next explo-ration?
St Thomas' Value	Compassion & Trust	Perseverance & Faith	Community & Joy
Substantive Knowledge Technical Knowledge & Practical Skills. ***Mechanisms*** ***Food & Nutrition*** ***Structures*** ***Electrical Systems*** ***Textiles***	Know that food comes from plants or animals and that it is farmed or caught. Know how to prepare simple dishes safely and hygienically without a heat source. Develop a food vocabulary using taste, smell, texture and touch. Group familiar products e.g. fruit and vegetables. Wash, cut and slice a range of ingredients. Work safely and hygienically. Know that everyone should eat at least five por-tions of fruit and vegetables a day. Understand the need for a variety of food in the diet.	Understand what a mechanism is Explore different mechanisms Know the difference between a lever and a slider Explore different sliders Make a model using a simple construction kit to explore the workings of a lever Insert paper fasteners for card linkages. Create hinges. Fold, tear and cut paper and card. Cut a simple shape Cut slots Create a background for your slider Make a simple pivot for your moving picture	Cut along lines, straight and curved, with scis-sors. Use a hole punch. Make vehicles with construction kits which con-tain free running wheels. Distinguish between fixed and freely moving axles. Use a range of materials to create models with wheels and axles e.g. glue, tape, dowel and cotton reels. Attach wheels to a chassis using an axle.
Key Vocabulary	Names of fruit and vegetables Kebab, skewer, chop, peel, slice, diet, ingredi-ents, Chopping board	Lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, in, out	vehicles, fixed axle, free axle, body, wheel, chas-sis, assembling, joining, finishing, assembling
Disciplinary Knowledge **Design** **Make** **Evaluate**	<u>Designing</u> <u>Understanding Contexts, users and purposes</u> Use simple design criteria State what their products are and how they will work <u>Generating, developing, modelling and communicating ideas.</u> Draw on their own experiences to generate ide-as. Identify a target group for what they intend to design and make. Select pictures to help develop ideas. Suggest ideas and explain what they are going to do. Model their ideas in card and paper.	<u>Designing</u> <u>Understanding Contexts, users and purposes</u> Use simple design criteria State what their products are and how they will work <u>Generating, developing, modelling and communicating ideas.</u> Draw on their own experiences to generate ide-as. Identify a target group for what they intend to design and make. Select pictures to help develop ideas. Suggest ideas and explain what they are going to do. Model their ideas in card and paper.	<u>Designing</u> <u>Understanding Contexts, users and purposes</u> Use simple design criteria State what their products are and how they will work <u>Generating, developing, modelling and communicating ideas.</u> Draw on their own experiences to generate ide-as. Identify a target group for what they intend to design and make. Select pictures to help develop ideas. Suggest ideas and explain what they are going to do. Model their ideas in card and paper.

Design and Technology - Curriculum Overview

Year 1	Autumn Food and Nutrition Fruit Kebabs	Spring Mechanism Moving Pictures	Summer Mechanism Wheels and Axles
Disciplinary Knowledge **Design** **Make** **Evaluate**	Select materials from a limited range that will meet their design criteria Planning Follow verbal instructions. Describe what they need to do next. Name the tools they are using. Evaluating Own ideas and products Talk about their designs as they develop Identify good and bad points. Talk about changes made during the making process. Existing Products Explore a range of books and existing products that use simple sliders and levers. Explore a range of free-standing structures in the school and local environment e.g. everyday products and buildings. Test and evaluate a range of fruit and vegeta-bles. Explore: Who products are for. What products are for. How they work and are used. What materials they are made from. What they like and dislike about them.	Select materials from a limited range that will meet their design criteria Planning Follow verbal instructions. Describe what they need to do next. Name the tools they are using. Evaluating Own ideas and products Talk about their designs as they develop Identify good and bad points. Talk about changes made during the making process. Existing Products Explore a range of books and existing products that use simple sliders and levers. Explore a range of free-standing structures in the school and local environment e.g. everyday products and buildings. Test and evaluate a range of fruit and vegeta-bles. Explore: Who products are for. What products are for. How they work and are used. What materials they are made from. What they like and dislike about them.	Select materials from a limited range that will meet their design criteria Planning Follow verbal instructions. Describe what they need to do next. Name the tools they are using. Evaluating Own ideas and products Talk about their designs as they develop Identify good and bad points. Talk about changes made during the making process. Existing Products Explore a range of books and existing products that use simple sliders and levers. Explore a range of free-standing structures in the school and local environment e.g. everyday products and buildings. Test and evaluate a range of fruit and vegeta-bles. Explore: Who products are for. What products are for. How they work and are used. What materials they are made from. What they like and dislike about them.
Experiential Knowledge **Our Church /Our Community** **Visit / Place / Person**			
Protected Characteristics			

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Year 2	Autumn **Textiles** Christmas Stocking	Spring **Food & Nutrition**	Summer **Structures** Creating a house
Enquiry Question	What materials and stitches make the best Christmas stocking?	What would be a healthy snack for a picnic on the beach?	What materials and techniques can we use to recreate houses from the Great Fire of London?
St Thomas' Value	Compassion & Trust	Perseverance & Faith	Community & Joy
Substantive Knowledge Technical Knowledge & Practical Skills. ***Mechanisms*** ***Food & Nutrition*** ***Structures*** ***Electrical Systems*** ***Textiles***	Cut out shapes which have been created by drawing round a template onto the fabric. Join fabrics by using a running stitch, glue, staples and tape. Decorate fabric with buttons, beads, sequins, braids and ribbons. Colour fabrics using a range of techniques e.g. fabric paints, fabric crayons, printing and painting.	Know that food comes from plants or animals and that it is farmed or caught. Know how to prepare simple dishes safely and hygienically without a heat source. Grate, squeeze and peel a range of ingredients. Measure and weigh food items- non statutory measures e.g. spoons & cups. Understand the need for a variety of food in the diet.	Join appropriately for different materials and situations e.g. glue and tape. Mark out materials to be cut using a template. Make structures more stable by giving them a wide base. Investigate strengthening sheet materials. Investigate joining temporary, fixed and moving materials. Select new and reclaimed materials and construction kits to build their structures. Choose and use appropriate finishing techniques.
Key Vocabulary	stocking, fabric, decorate, stitch, glue, template, design, felt, colour, pattern	food, diet, hygiene, ingredients, grate, squeeze, peel, weigh, fruit	house, join, structure, 3D, template, base, L brace, flange join, slot join
Disciplinary Knowledge **Design** **Make** **Evaluate**	<u>Designing</u> <u>Understanding Contexts, users and purposes</u> Use simple design criteria State what their products are, who and what they are for and how they will work <u>Generating, developing, modelling and communicating ideas.</u> Generate ideas using their own experiences and existing products. Identify a purpose for what they intend to design and make. Develop their design ideas through discussion, drawing and modelling and, where appropriate, computers. Discuss their work as it progresses. Explain which materials they are using. <u>Planning</u> Plan by suggesting what to do next. Select from a range of tools and materials. <u>Evaluating</u> <u>Own ideas and products</u> Evaluate their products as they are developed. Identify strengths and possible changes they might make.	<u>Designing</u> <u>Understanding Contexts, users and purposes</u> Use simple design criteria State what their products are, who and what they are for and how they will work <u>Generating, developing, modelling and communicating ideas.</u> Generate ideas using their own experiences and existing products. Identify a purpose for what they intend to design and make. Develop their design ideas through discussion, drawing and modelling and, where appropriate, computers. Discuss their work as it progresses. Explain which materials they are using. <u>Planning</u> Plan by suggesting what to do next. Select from a range of tools and materials. <u>Evaluating</u> <u>Own ideas and products</u> Evaluate their products as they are developed. Identify strengths and possible changes they might make.	<u>Designing</u> <u>Understanding Contexts, users and purposes</u> Use simple design criteria State what their products are, who and what they are for and how they will work <u>Generating, developing, modelling and communicating ideas.</u> Generate ideas using their own experiences and existing products. Identify a purpose for what they intend to design and make. Develop their design ideas through discussion, drawing and modelling and, where appropriate, computers. Discuss their work as it progresses. Explain which materials they are using. <u>Planning</u> Plan by suggesting what to do next. Select from a range of tools and materials. <u>Evaluating</u> <u>Own ideas and products</u> Evaluate their products as they are developed. Identify strengths and possible changes they might make.

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Year 2	Autumn	Spring	Summer
	Textiles Christmas Stocking	**Food & Nutrition**	**Structures** Creating a house
Disciplinary Knowledge **Design** **Make** **Evaluate**	Make simple judgements about their products and ideas against design criteria. Existing Products Explore a range of books and existing products that use simple sliders and levers. Explore a range of free-standing structures in the school and local environment e.g. everyday products and buildings. Test and evaluate a range of fruit and vegetables. Explore: Who products are for. What products are for. How they work and are used. What materials they are made from. What they like and dislike about them.	Make simple judgements about their products and ideas against design criteria. Existing Products Explore a range of books and existing products that use simple sliders and levers. Explore a range of free-standing structures in the school and local environment e.g. everyday products and buildings. Test and evaluate a range of fruit and vegetables. Explore: Who products are for. What products are for. How they work and are used. What materials they are made from. What they like and dislike about them.	Make simple judgements about their products and ideas against design criteria. Existing Products Explore a range of books and existing products that use simple sliders and levers. Explore a range of free-standing structures in the school and local environment e.g. everyday products and buildings. Test and evaluate a range of fruit and vegetables. Explore: Who products are for. What products are for. How they work and are used. What materials they are made from. What they like and dislike about them.
Experiential Knowledge **Our Church /Our Community** **Visit / Place / Person**	Visit to Church. Products to be brought in.	Community – show pictures of what we have created.	Trip to the Fire engines in Rochdale (May 2025)
Protected Characteristics	None	None	None

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Year 3	*Autumn Term*	*Spring Term*	*Summer Term*
	Mechanisms Pop-up Cards	**Food & Nutrition** Rainbow Wraps	**Structures** Famous Buildings
Enquiry Question	Can you make a pop-up card with a lever and a linkage?	Can you make a healthy sandwich snack?	Can you make a free-standing structure from card-board nets?
St Thomas' Value	Compassion & Trust	Perseverance & Faith	Community & Joy
Substantive Knowledge *Technical Knowledge & Practical Skills.* ***Mechanisms*** ***Food & Nutrition*** ***Structures*** ***Electrical Systems*** ***Textiles***	Use and explore complex pop-ups. Use linkages to make movement larger or more varied. Cut slots. Cut internal shapes. Distinguish between fixed and loose pivots. Use lolly sticks/card to make levers and linkages.	Know that food is grown, reared and caught in the UK, Europe and the wider world. Know about a range of fresh and processed ingredients appropriate for their product. Know how to prepare simple dishes safely and hygienically. Demonstrate hygienic food storage. Develop sensory food vocabulary/knowledge using taste, smell, texture and touch. Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. Follow instructions and recipes. Join and combine a range of ingredients. Show an awareness of a healthy diet. Mix and spread ingredients	Prototype frame and shell structures. Select and choose appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. Develop and use knowledge of how to construct strong, stiff shell structures. Use tabs. Develop and use knowledge of nets of cubes and cuboids and where appropriate, more complex 3D shapes. Explain their choice of materials according to functional properties and aesthetic qualities. Use finishing techniques suitable for the product they are creating to improve the appearance of their product using a range of equipment including ICT.
Key Vocabulary	mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function prototype, design criteria, innovative, appealing, design brief	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype

Design and Technology - Curriculum Overview

Year 3	*Autumn Term*	*Spring Term*	*Summer Term*
	Mechanisms Pop-up Cards	**Food & Nutrition** Rainbow Wraps	**Structures** Famous Buildings
Disciplinary Knowledge **Design** **Make** **Evaluate**	<u>Understanding Contexts, users and purposes</u> Develop a design criteria Describe the user, purpose and design features of their products and explain how they will work. Generate ideas based on the user. <u>Generating, developing, modelling and communicating ideas.</u> Generate ideas for an item, considering its purpose and the users. Identify a purpose and establish criteria for a successful product. Explore, develop and communicate design proposals by using annotated sketches and prototypes to develop, model and communicate ideas. Develop their design ideas applying findings from their earlier research. <u>Planning</u> Plan the order of their work before starting. Select suitable tools, equipment, materials and components. <u>Evaluating own products</u> Discuss how well the finished product meets the design criteria and how well it meets the needs of the user. Consider and explain how the finished product could be improved. Take into account others' views. <u>Evaluating Existing Products</u> Disassemble and evaluate familiar products. Identify what does and does not work in a product. Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Investigate: How well products have been designed. How well products have been made. Whether they are fit for purpose. Whether products meet user needs. Why materials have been chosen. The methods of construction used. How well they work. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	<u>Understanding Contexts, users and purposes</u> Develop a design criteria Describe the user, purpose and design features of their products and explain how they will work. Generate ideas based on the user. <u>Generating, developing, modelling and communicating ideas.</u> Generate ideas for an item, considering its purpose and the users. Identify a purpose and establish criteria for a successful product. Explore, develop and communicate design proposals by using annotated sketches and prototypes to develop, model and communicate ideas. Develop their design ideas applying findings from their earlier research. <u>Planning</u> Plan the order of their work before starting. Select suitable tools, equipment, materials and components <u>Evaluating own products</u> Discuss how well the finished product meets the design criteria and how well it meets the needs of the user. Consider and explain how the finished product could be improved. Take into account others' views. <u>Evaluating Existing Products</u> Disassemble and evaluate familiar products. Identify what does and does not work in a product. Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Investigate: How well products have been designed. How well products have been made. Whether they are fit for purpose. Whether products meet user needs. Why materials have been chosen. The methods of construction used. How well they work. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	<u>Understanding Contexts, users and purposes</u> Develop a design criteria Describe the user, purpose and design features of their products and explain how they will work. Generate ideas based on the user. <u>Generating, developing, modelling and communicating ideas.</u> Generate ideas for an item, considering its purpose and the users. Identify a purpose and establish criteria for a successful product. Explore, develop and communicate design proposals by using annotated sketches and prototypes to develop, model and communicate ideas. Develop their design ideas applying findings from their earlier research. <u>Planning</u> Plan the order of their work before starting. Select suitable tools, equipment, materials and components <u>Evaluating own products</u> Discuss how well the finished product meets the design criteria and how well it meets the needs of the user. Consider and explain how the finished product could be improved. Take into account others' views. <u>Evaluating Existing Products</u> Disassemble and evaluate familiar products. Identify what does and does not work in a product. Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Investigate: How well products have been designed. How well products have been made. Whether they are fit for purpose. Whether products meet user needs. Why materials have been chosen. The methods of construction used. How well they work. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
Experiential Knowledge Our Church /Our Community Visit / Place / Person		STEM Week	
Protected Characteristics			

Design and Technology - Curriculum Overview

Year 4	Autumn Term	Spring Term	Summer Term
	Food & Nutrition Greek Salads	**Electrical Systems** Lamps	**Textiles** Explorer Bags
Enquiry Question	Can you make a healthy Greek salad?	Can you create a circuit to light up a lamp?	Can you use fabric and thread to make a bag?
St Thomas' Value	Compassion & Trust	Perseverance & Faith	Community & Joy
Substantive Knowledge Technical Knowledge & Practical Skills. **Mechanisms** **Food & Nutrition** **Structures** **Electrical Systems** **Textiles**	Know that food is grown, reared and caught in the UK, Europe and the wider world. Know about a range of fresh and processed ingredients appropriate for their product. Know how to prepare simple dishes safely and hygienically. Demonstrate hygienic food storage. Analyse the taste, texture, smell and appearance of a range of food. 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. Make healthy eating choices from an understanding of a balanced diet. That food and drink are needed to provide energy for the body.	Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.	Prototype a product using J-cloths. Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. Join fabrics using running stitch, over-sewing and back-stitch. Use appropriate decoration techniques (applique or simple stitches.) Understand the need for patterns and create a simple pattern. Understand seam allowance. Explore fastenings and recreate some e.g. sew on buttons and make loops.
Key Vocabulary	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function, prototype, design criteria, innovative, appealing, design brief	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces

Design and Technology - Curriculum Overview

<table>
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Greek Salads</th><th>Electrical Systems
Lamps</th><th>Textiles
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Design
Make
Evaluate</td>
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Develop their own design criteria
Describe the user, purpose and design features of their prod-ucts and explain how they will work.
Gather information about user needs.
<u>Generating, developing, modelling and communicating ideas.</u>
Generate realistic design ideas and their own design criteria through discussion, focusing on the needs of the user.
Draw up a specification for their design.
Use annotated sketches from different views and proto-types/patter pieces to develop, model and communicate ideas.
<u>Planning</u>
Develop a clear idea of what has to be done, ordering how to use materials, equipment and processes.
Select suitable tools, equipment, materials and components and explain their choices.
Use the correct technical vocabulary
<u>Evaluating own products</u>
Decide which design idea to develop.
Evaluate their ideas and products both during and at the end of the assignment against the design criteria.
Evaluate their products, carrying out appropriate tests.
Think about their ideas as they progress and be willing to change things if this helps them improve their work.
<u>Evaluating Existing Products</u>
Disassemble and evaluate familiar products.
Identify what does and does not work in a product.
Investigate and analyse books and, where available, other products with lever and linkage mechanisms.
Investigate:
How well products have been designed.
How well products have been made.
Whether they are fit for purpose.
Whether products meet user needs.
Why materials have been chosen.
The methods of construction used.
How well they work.
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Our Church /Our Community
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<tr><td>Protected Characteristics</td><td></td><td></td><td></td></tr>
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Design and Technology - Curriculum Overview

Year 5	Autumn Term	Spring Term	Summer Term
	Mechanisms cam toys	**Food & Nutrition** Vegetable Soup	**Structures** Playground Shelters
Enquiry Question	Can you make a moving toy?	Can you make a hearty healthy soup?	Can you build a strong structure?
St Thomas' Life Question	How do toys bring a child joy?	Is eating sustainably the way forward?	Is the quickest way always the best way?
Substantive Knowledge Technical Knowledge & Practical Skills. **Mechanisms** **Food & Nutrition** **Structures** **Electrical Systems** **Textiles**	Use a cam to make an up and down mechanism. Develop measuring, marking, cutting, shaping and joining skills. Build frameworks using a range of materials to support mechanisms. Cut accurately and safely to a marked line. Join and combine materials with temporary, fixed or moving joints.	Know that food is grown, reared and caught in the UK, Europe and the wider world. Know that the seasons may affect the food available. Know how food is processed into ingredients. Know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source. Taste a range of ingredients/food items to develop a sensory food vocabulary for use when designing. Weigh and measure using scales. Cut and shape ingredients, using appropriate tools and equipment. Join and combine food ingredients appropriately.	Join materials using appropriate methods e.g. glue, tape. Elastic bands and card triangles. Create a shell or frame structure; strengthen frames with diagonal struts. Measure and mark square selection, strip and dowel accordingly to 1cm. Use a glue gun with close 1:1 supervision.
Key Vocabulary	cam, snail cam, off-centre cam, peg cam, pear shaped cam, follower, axle, shaft, crank, handle, housing, framework, rotation, rotary motion, oscillating motion, reciprocating motion annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	ingredients, herbs, vegetables, vitamins, nutrients, nutrition, healthy, varied, source, seasonality, utensils, combine, stir, pour, grate, peel, design specification, innovative, research, evaluate, design brief	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional

Design and Technology - Curriculum Overview

Year 5	Autumn Term	Spring Term	Summer Term
	Mechanisms cam toys	**Food & Nutrition** Vegetable Soup	**Structures** Playground Shelters
Disciplinary Knowledge **Design** **Make** **Evaluate**	Understanding Contexts, users and purposes Develop a simple design specification Describe the user, purpose and design features of their products and explain how they will work. Carry out research to identify user's needs. Generating, developing, modelling and communicating ideas. Generate ideas by carrying out research through interviews. Draw up a specification for their design. Use results of investigations, information sources, including ICT when developing design ideas. Planning Formulate lists of resources and step-by-step plans to guide making, listing tools, equipment, materials and components. Select suitable tools, equipment, materials and components and explain their choices. Work within the constraints of time. Evaluating own products Use design criteria to inform decisions about ways to proceed. Justify decisions about materials and methods of construction. Make suggestions as to how their design could be improved. Seek evaluation from others. Evaluating Existing Products Investigate: •How well products have been designed. •How well products have been made. •Whether they are fit for purpose. •Whether products meet user needs. •Why materials have been chosen. •The methods of construction used. •How well they work. •How innovative they are. •How sustainable they are. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	Understanding Contexts, users and purposes Develop a simple design specification Describe the user, purpose and design features of their products and explain how they will work. Carry out research to identify user's needs. Generating, developing, modelling and communicating ideas. Generate ideas by carrying out research through interviews. Draw up a specification for their design. Use results of investigations, information sources, including ICT when developing design ideas. Planning Formulate lists of resources and step-by-step plans to guide making, listing tools, equipment, materials and components. Select suitable tools, equipment, materials and components and explain their choices. Work within the constraints of time. Evaluating own products Use design criteria to inform decisions about ways to proceed. Justify decisions about materials and methods of construction. Make suggestions as to how their design could be improved. Seek evaluation from others. Evaluating Existing Products Investigate: •How well products have been designed. •How well products have been made. •Whether they are fit for purpose. •Whether products meet user needs. •Why materials have been chosen. •The methods of construction used. •How well they work. •How innovative they are. •How sustainable they are. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	Understanding Contexts, users and purposes Develop a simple design specification Describe the user, purpose and design features of their products and explain how they will work. Carry out research to identify user's needs. Generating, developing, modelling and communicating ideas. Generate ideas by carrying out research through interviews. Draw up a specification for their design. Use results of investigations, information sources, including ICT when developing design ideas. Planning Formulate lists of resources and step-by-step plans to guide making, listing tools, equipment, materials and components. Select suitable tools, equipment, materials and components and explain their choices. Work within the constraints of time. Evaluating own products Use design criteria to inform decisions about ways to proceed. Justify decisions about materials and methods of construction. Make suggestions as to how their design could be improved. Seek evaluation from others. Evaluating Existing Products Investigate: •How well products have been designed. •How well products have been made. •Whether they are fit for purpose. •Whether products meet user needs. •Why materials have been chosen. •The methods of construction used. •How well they work. •How innovative they are. •How sustainable they are. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
Experiential Knowledge Our Church /Our Community Visit / Place / Person	Link with RE – Cam Toy to be made for a 'Christmas Display' in church incorporating Christian Symbols of Christmas.	Jam sandwich and Soup-tasting STEM Week Link with History – Anglo Saxon farming and living sustainably.	Visit to our outdoor area and consideration of our own playground shelter.
Protected Characteristics	Race & Religion		

Design and Technology - Curriculum Overview

Year 6	Autumn Term	Spring Term	Summer Term
	Textiles Frosty Figures	**Food & Nutrition** Bake Off	**Electrical Systems** Fair Ground Ride
Enquiry Question	Can you make a frosty figure for a shadow puppet show?	Can you bake a cake worthy of a prize?	Can you control a model using an ICT control programme?
St Thomas' Value	Compassion & Trust	Perseverance & Faith	Community & Joy
Substantive Knowledge Technical Knowledge & Practical Skills. **Mechanisms** **Food & Nutrition** **Structures** **Electrical Systems** **Textiles**	Decorate textiles appropriately, often before joining components. Combine fabrics to create more useful properties. Pick and tack fabric pieces together. Understand pattern layout. Create 3D products using pattern pieces and seam allowance. Join fabrics using over-sewing, back stitch and blanket stitch. Make quality products.	Know that food is grown, reared and caught in the UK, Europe and the wider world. Know that the seasons may affect the food available. Know how food is processed into ingredients. Know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source. Prepare food products taking into account the properties of ingredients and sensory characteristics. Select and prepare foods for a particular purpose. Show an awareness of a healthy diet and making their choices based on a balanced diet. Know that different food and drink contain nutrients, water and fibre that are needed for health.	Control a model using an ICT control programme. Incorporate a motor and a switch into a model. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Use automatic wire strippers, twist and tape electrical connections, screw connections and connecting blocks.
Key Vocabulary	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart function, innovative, design specification, design brief, user, purpose
Disciplinary Knowledge **Design** **Make** **Evaluate**	<u>Understanding Contexts, users and purposes</u> Develop their own design specification Describe the user, purpose and design features of their products and explain how they will work. Carry out independent research to identify user's needs.	<u>Understanding Contexts, users and purposes</u> Develop their own design specification Describe the user, purpose and design features of their products and explain how they will work. Carry out independent research to identify user's needs.	<u>Understanding Contexts, users and purposes</u> Develop their own design specification Describe the user, purpose and design features of their products and explain how they will work. Carry out independent research to identify user's needs.

Design and Technology - Curriculum Overview

Year 6	Autumn Term	Spring Term	Summer Term
	Textiles Frosty Figures	**Food & Nutrition** Bake Off	**Electrical Systems** Fair Ground Ride
Disciplinary Knowledge **Design** **Make** **Evaluate**	<u>Generating, developing, modelling and communicating ideas.</u> Generate innovative ideas drawing on research including surveys, interviews and questionnaires. Draw up a specification for their design, justifying their choices. Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways including exploded diagrams, discussion, prototypes, pattern pieces and computer-aided design. <u>Planning</u> Develop a clear idea of what has to be done, ordering how to use materials, equipment and processes and suggesting alternative methods of making if first attempts fail. 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. <u>Evaluating own products</u> Identify strengths and areas to develop in their ideas and products against their design specification. Consider the views of others to make improvements. Record their evaluations using drawings with labels. <u>Evaluating Existing Products</u> Investigate: How well products have been designed. How well products have been made. Whether they are fit for purpose. Whether products meet user needs. Why materials have been chosen. The methods of construction used. How well they work. How innovative they are. How sustainable they are. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	<u>Generating, developing, modelling and communicating ideas.</u> Generate innovative ideas drawing on research including surveys, interviews and questionnaires. Draw up a specification for their design, justifying their choices. Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways including exploded diagrams, discussion, prototypes, pattern pieces and computer-aided design. <u>Planning</u> Develop a clear idea of what has to be done, ordering how to use materials, equipment and processes and suggesting alternative methods of making if first attempts fail. 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. <u>Evaluating own products</u> Identify strengths and areas to develop in their ideas and products against their design specification. Consider the views of others to make improvements. Record their evaluations using drawings with labels. <u>Evaluating Existing Products</u> Investigate: How well products have been designed. How well products have been made. Whether they are fit for purpose. Whether products meet user needs. Why materials have been chosen. The methods of construction used. How well they work. How innovative they are. How sustainable they are. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	<u>Generating, developing, modelling and communicating ideas.</u> Generate innovative ideas drawing on research including surveys, interviews and questionnaires. Draw up a specification for their design, justifying their choices. Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways including exploded diagrams, discussion, prototypes, pattern pieces and computer-aided design. <u>Planning</u> Develop a clear idea of what has to be done, ordering how to use materials, equipment and processes and suggesting alternative methods of making if first attempts fail. 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. <u>Evaluating own products</u> Identify strengths and areas to develop in their ideas and products against their design specification. Consider the views of others to make improvements. Record their evaluations using drawings with labels. <u>Evaluating Existing Products</u> Investigate: How well products have been designed. How well products have been made. Whether they are fit for purpose. Whether products meet user needs. Why materials have been chosen. The methods of construction used. How well they work. How innovative they are. How sustainable they are. Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
Experiential Knowledge Our Church /Our Community Visit / Place / Person	Shadow puppet show	Bake off experience Key Person - Monica Galetti	Key person - Nikola Tesla (Electrical systems)
Protected Characteristics	Age (target audience)	Religion & Belief	Disability (accessibility for the fairground ride)