Friskney All Saints
Church of England
Primary School

Friskney All Saints Church of England Primary School

DT Curriculum Intent

At Friskney All Saints Primary School, we are Designers and Technologists.

At Friskney Primary School we recognise the positive role that design and technology has to play in promoting a long-term desire to design, create, problem solve, build and evaluate products which is both enjoyable and purposeful. We also recognise that children should understand and be able to apply the principles of nutrition and cooking to help them live a healthy, happy life.
In line with our Whole-School Curriculum Intentions, we will deliver a DT Curriculum that ensures:

- Children enjoy learning and are excited and inspired to learn new fundamental skills, which they can then apply across a broad range of ways, demonstrating excellent attitudes to learning.
- Children can confidently recall key knowledge and apply skills and strategies from current and previous areas of learning.
- Knowledge is retained in children's long-term memories.
- Children can confidently apply knowledge to their learning, using and applying high-level vocabulary.
- Children are independent learners who aim to problem solve critically with valid reasoning and are articulate and are confident to talk about a wide range of topics.
- Children demonstrate many high-level skills and can critique, evaluate and test their products.

DT Curriculum Drivers at Friskney All Saints C of E School

Inspiration – Our DT curriculum aims to ignite students' curiosity and passion for creative problem-solving and innovation. Through hands-on design projects, students are encouraged to explore their creativity and develop a deep appreciation for the world of design and technology. We provide engaging learning experiences that captivate students' imaginations and inspire a lifelong love for designing and making. By removing barriers and catering to diverse learning needs, including those with SEND, we ensure that all students can fully participate and excel in DT activities. Enrichment opportunities such as local industry visits and hands-on workshops are carefully integrated into the curriculum to broaden students' understanding of design principles and real-world applications. Our curriculum is designed to be irresistible, fostering a sense of excitement and empowerment as students discover and develop their talents as young designers.

Excellence - Our ambitious DT curriculum is designed to ensure that every child reaches their full potential and always *striving for excellence*. Each year, the children's identified learning builds upon previously taught content through **clearly mapped out, sequential units** which detail the **substantive and disciplinary knowledge**. In our DT curriculum, we set high expectations for every student to achieve excellence in their design and making skills. Through carefully structured units, students build upon their previous knowledge and skills, progressing towards mastery in design thinking and practical tasks. We prioritise vocabulary acquisition, ensuring that students develop a strong understanding of technical terms and concepts relevant to DT. Regular opportunities for retrieval and reinforcement of learning are embedded throughout the curriculum, enabling students to consolidate their understanding and retain essential knowledge and skills. By fostering a culture of excellence, we empower students to strive for their personal best and realise their full potential as designers and innovators.

Exploration – Our DT curriculum encourages students to explore the world around them through the lens of design and technology. By investigating local contexts, including Friskney and Modern Britain, as well as global issues, students develop a deeper understanding of the role of design in shaping our lives and communities. Through inquiry-based learning and problem-solving activities, students are challenged to think critically, independently, and creatively. We emphasize the development of oracy and reading skills, allowing students to effectively communicate their ideas and understand design concepts. Fieldwork opportunities provide students with hands-on experiences to analyse geographical concepts, identify patterns, and explore real-world design challenges. Through a strong focus on personal development, we prepare students to navigate the complexities of the modern world and foster a sense of curiosity and readiness for their future educational endeavours.

DT Implementation at Friskney All Saints C of E School

DT in the EYFS	
Characteristics of effective learning	Children will engage in their learning through the characteristics of effective teaching and learning. The three characteristics of effective teaching and learning are: • **Playing and exploring** – children investigate and experience things and have a go • **Active learning** – children concentrate and keep on trying if they encounter difficulties and enjoy achievements • **Creating and thinking critically** – children have and develop their own ideas, make links between their ideas and develop strategies for doing things
Educational Programme	**Expressive Arts and Design –** statutory framework The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.
Development Matters Reception Statements (Examples of what this could look like)	**Explore, use and refine a variety of artistic effects to express their ideas and feelings.** *(Teach children to develop their colour mixing techniques to enable them to match the colours they see and want to represent, with step-by-step guidance when appropriate.)* **Return to and build on their previous learning, refining ideas and developing their ability to represent them.** *(Provide opportunities to work together to develop and realise creative ideas. Provide children with a range of materials for children to construct with. Encourage them to think about and discuss what they want to make. Discuss problems and how they might be solved as they arise. Reflect with children on how they have achieved their aims.)* **Create collaboratively sharing ideas, resources and skills** *(Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue. Provide a range of materials and tools and teach children how to use them with care and precision. Promote independence, taking care not to introduce too many new things at once. Some skills that could be taught but not limited to colour mixing, pencil drawings, portraits, use of mixed media e.g. collage, scissor skills, different joins e.g split pins, Sellotape, masking tape, PVA glue, staples, paper clips, treasury tags, hole punch. Evaluate and improve their designs, deciding which materials/joins etc are most appropriate, select and use materials safely and sensibly, provide opportunities for children to construct dens, building blocks, playdough, magnetic blocks, polydron, large construction e.g tyres, guttering. Creating recipes in the mud kitchen using a variety of natural resources, use of moulding tools for playdough and clay. Children to be exposed to textiles and basic sewing, children to prepare simple recipes with food)*
End of year Expectations: (ELG)	**ELG: Creating with Materials** *Children at the expected level of development will:* - 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; - Make use of props and materials when role playing characters in narratives and stories.
Vocabulary:	Vocabulary – enriching and widening (subject specific relating to overarching topics) Design Technology vocabulary children will be exposed to: Appearance, design, make, build, model, cut, join, shape, create, decorate, tools, ingredients, recipe, materials, purpose, texture, function, stable, durable, improve, safe, secure, develop, attach, thread,

Curriculum Overview KS1 and 2

	Year 1/2 Term 2	Year 1/2 Term 4	Year 1/2 Term 6	Year 3/4 Term 2	Year 3/4 Term 4	Year 3/4 Term 6	Year 5/6 Term 2	Year 5/6 Term 4	Year 1 Term 6
Year A	Food: - Fruit Salad Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Structures – free standing structures	Mechanisms - Sliders and levers	Construction - Structures Shell structures (including computer-aided design)	Cooking and Nutrition - Healthy and varied diet (including cooking and nutrition requirements for KS2)	Electrical Systems Simple circuits and switches (including programming and control)	Food- Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Electrical systems - More complex switches and circuits (including programming, monitoring and control)	Structures - Frame structures
Year B	Food – Pizza Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Textiles - Templates and joining techniques	Mechanisms - Wheels and Axles	Textiles - 2-D shape to 3-D product	Construction - Mechanical Systems Levers and linkage	Food - Healthy and varied diet (including cooking and nutrition requirements for KS2)	Mechanisms - Mechanical Systems - Pulleys or gears	Food - Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Textiles - Combining different fabric shapes (including computer-aided design)

Key Stage 1
Why this, why now?

	Year 1/2 Term 2	Why this, why now	Year 1/2 Term 4	Why this, why now	Year 1/2 Term 6	Why this, why now
Year A	Food: - Fruit salad Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Builds on EYFS - Children - Begin to look at why we eat and how it helps our body, linking to healthy diet PSHE. Compare fruit salads, taste fruits and chop to create. Safe holding of the knife, peeling, chopping, squeezing, coring. Know where food comes from. Know about a healthy diet. Builds on what they learnt in class 1 about food through their senses and to build on why we eat certain foods. To introduce where our foods come from- plants, trees, animals, processed.	Structures – free standing structures	Jinx's corners 2D structure/photo frame design starts to join components together to create a strong structure. Explore how structures can be made more stable. Join different materials (could have a recycling focus to decorate and reuse card/plastic etc) Draw to size on 1cm paper. Opportunity to build on box modelling skills from EYFS to create houses linked	Mechanisms -Sliders and levers	Builds on practical experiences in EYFS. Simple tab style pop up mechanisms then further strip pushes under this, and card shapes can be added to the top to 'pop up' from behind the sheet of card.) Could lead to a Father's Day card or seaside theme. Children can later incorporate pop ups into their own junk modelling.
Year B	Food – Pizza Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	Builds on EYFS and previous food unit for Year 2 children. Links to PSHE curriculum and healthy eating Chop, tear and use	Textiles - Templates and joining techniques	Using a simple template cut out a template, add pieces of fabric and sew with basic stitches (running, back, cross stitch) End products = bookmark (to practice and	Mechanisms - Wheels and Axles	Builds on EYFS experience eg tractors and boat building, introducing new concepts of axles and increasing skill using tools and joining techniques that

		tools (ideally grow the produce first) develop food vocabulary to talk about using taste, smell, texture and feel. Start to know we need different foods in our diet and where it comes from.		apply stitches not design task) and puppet (design task) disassemble and evaluate existing products. Links: Literacy/Science or History characters		allow rotation. Could be linked to agricultural themes (tractors)

Year 3/4
Why this, why now?

	Year 3/4 Term 2	Why this, why now?	Year 3/4 Term 4	Why this, why now?	Year 3/4 Term 6	Why this, why now?
Year A	Construction - Structures Shell structures (including computer-aided design)	Construct a 3D structure (build on Jinx's frame skills but now 3D) Add shell to the frame. Explore widened bases to provide stability. Begin to introduce scale. Bug houses or book nook link.	Cooking and Nutrition - Healthy and varied diet (including cooking and nutrition requirements for KS2)	Moves on to other food groups and nutritional value to the body. Incorporates maths skills taught in LKS2 with measuring/area for packaging. Discuss the preparation skills and why we do certain things to prepare food so moving on from just the skill name form KS1 to why we do it.	Electrical Systems Simple circuits and switches (including programming and control)	Evaluate nightlights and design, build own either to include a switch (variety of different types) or linked to a control programme e.g. Scratch[JR1]
Year B	Textiles - 2-D shape to 3-D product	Increase range of stitches, join and stuff item, add decorations using ribbons, buttons and sequins (Christmas decoration) OR alternatively, could create a 'themed' set of juggling balls.	Construction - Mechanical Systems Levers and linkage	Pneumatics & Hydraulics Build a mascot for a special event e.g. with moving arms, beak etc. Explore pneumatic systems and incorporate into a design. (Balloons, plastic tubing, syringes (air/water) Construction: Mechanisms and moving parts 3D structure	Food - Juices and smoothies Healthy and varied diet (including cooking and nutrition requirements for KS2)	Consolidate balanced diet. Incorporating choices for children to combine foods to make healthy choices. Consolidate learning on where food comes from as in sourced from and then begin to look at location of sourcing and food miles as in UKS2 they will look at locally grown produce and seasonality to reduce food

				incorporating axles, gears, linkages, and pulleys. Roman catapult etc.		miles to improve the environmental impact.

Year 5/6
Why this, why now?

	Year 5/6 Term 2	Why this, Why now?	Year 5/6 Term 4	Why this, Why now?	Year 1 Term 6	Why this, Why now?
Year A	Food- Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Breads around the world. Know where and how a variety of ingredients are grown, reared, caught and processed. Explore breads, textures and ingredients because they are the same/ different. Explore different grains. Explore a simple recipe for bread. Design and bake own bread. Understand how to prepare and cook savoury dishes, explore mixing, kneading and baking. Explore cost and budget. Links to science – micro-organisms. Continue to look at where produce comes from. Looking at and comparing things. Similarities and difference across cultures. Using knowledge of seasonality to incorporate in designing own products	Electrical systems - More complex switches and circuits (including programming, monitoring and control)	Needs to be sequenced in line with science. Build on previous learning in structures and mechanisms and electrical circuits. Use aspects of design, make and evaluate process to link with Technical knowledge: understand and use electrical systems in their products [for example, series circuits	Structures - Frame structures	This builds on from previous learning and can be linked to history/geography units in terms of the outcome.
Year B	Mechanisms - Mechanical Systems - Pulleys or gears	Understand that success can be achieved through perseverance and use their skills learnt throughout their time in school to use at secondary school and a future career in designing or technology. Building on previous learning of moving mechanisms and vocabulary.	Food - Celebrating culture and seasonality (including cooking and nutrition	Prepare and cook savoury dishes. Test soups and compare nutrition. Explore seasonal vegetables. Explore bases for soups. Use blenders and hob. Know where ingredients are grown, reared, caught and processed.	Textiles – Funky Furnishing Combining different fabric	– create an object include seam allowance. Join textiles with a combination of stitching techniques. Use the qualities of materials to create visual and tactile effects – may include screen printing/fabric pens/ paints/tie dye etc. Cushion. Builds on previous textiles progression, giving a more

			requirements for KS2)	Know season affect the food which is available. Understand how it can be processed. Explore cost and budget Look at seasonality and make choices to use produce sourced locally on taste and on food miles to discuss how food miles have a big impact on the environment. Discuss costs and budgets and how eating seasonal foods grown in the local area will reduce costs	shapes (including computer -aided design)	creative expression of their joining techniques.

Please see the DT Projects on a page for detailed vocabulary progression, substantive and disciplinary knowledge, sequencing and DMEA process.

Term/Unit	Learning Questions – Design, Make and Evaluate (disciplinary)	Substantive Knowledge	Key Vocabulary
Year A – Term 1 Food: - Fruit Kebabs Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	**Designing** • 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. **Making** • 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. **Evaluating** • 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.	• 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	Fruit Vegetable Nutrients Pith Salad Sensory Evaluation Kebab
Year A Term 2 Free standing Structures	**Designing** • Generate ideas based on simple design criteria and their own experiences, explaining what they could make.	• Know how to make freestanding structures stronger, stiffer and more stable.	Freestanding structure Frame structure Shell structure

	• Develop, model and communicate their ideas through talking, mock-ups and drawings **Making** • 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 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.	• Know and use technical vocabulary relevant to the project.	Stability Buttress Brick bonding Mock-up
Year A Term 3 Mechanisms – sliders and levers	**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 mockups with card and paper. **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 **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 and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project.	Sliders and Levers Mechanism Lever Slider Slot Guide or bridge
Year B– Term 1 Food: - Pizza	**Designing** • Design appealing products for a particular user based on simple design criteria.	• Understand where a range of food comes from e.g. farmed or grown at home.	Vegetable Nutrients Toppings Sensory

	• Generate initial ideas and design criteria through investigating a variety of vegetables and toppings • Communicate these ideas through talk and drawings. **Making** • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of toppings according to their characteristics e.g. colour, texture and taste to create a chosen product. **Evaluating** • Taste and evaluate a range of toppings to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose.	• 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	Evaluation Pizza Cutting, rolling, slicing, peeling
Year B Term 2 Textiles 2d shape to 3d product	**Designing** • Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through investigating a variety of fabrics and resources • Communicate these ideas through talk and drawings **Making** • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. Evaluation • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern **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.	• 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	Appliqué Design Embroider Evaluate Fray Glove puppet Mock-up Seam Sew Template
Year B Term 3 Mechanisms – wheels	**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 mockups with card and paper.	. • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	Wheels and axles Axle Dowel Axle holder Chassis

	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 **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.		Friction
Year A Term 1 Construction - Structures Shell structures (including computer-aided design)	**Designing** • 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. **Making** • 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. **Evaluating** • 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.	• 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.	CAD – computer aided design Shell structure Edge Face Vertex Font Net Cuboid Prism
Year A Term 2 Cooking and Nutrition	**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.	•Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate	Appearance Texture Sensory evaluation Preference test

	• Use annotated sketches and appropriate information and communication technology, such as web based recipes, to develop and communicate ideas. **Making** • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. **Evaluating** • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations 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	for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately	Strawberry huller Processed food
Year A Term 3 Electrical systems Systems	**Simple circuits and switches** **Please see DT on a page**		
Year B Term 1 Textiles	**Designing** • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. **Making** • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern **Evaluating** • Investigate a range of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user.	• Understand how a key event/individual has influenced the development of the chosen product and/or fabric. 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.	Appliqué Pattern/Template Seam Seam Allowance Prototype Aesthetics

	• Take into account others' views. • Know and use technical vocabulary relevant to the project.		
Year B Term 2 Mechanisms – pneumatics	**Designing** • Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. **Making** • Order the main stages of making. • Select from and use appropriate tools with some accuracy to create a mechanism using pneumatics • Select from and use finishing techniques suitable for the product they are creating. **Evaluating** • Investigate and analyse books and, where available, other products with pneumatic mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make.	Pneumatics Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the project.	Pneumatics Compressed Input Output Pivot Lever Pneumatic Hydraulic
Year B Term 3 Food - Juices and smoothies Healthy and varied diet (including cooking and nutrition requirements for KS2)	**Designing** • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web based recipes, to develop and communicate ideas. **Making** • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. **Evaluating** • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.	•Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately	Appearance Texture Sensory evaluation Preference test Strawberry huller Processed food

	• Evaluate the ongoing work and the final product with reference to the design criteria and the views of others		
Year A Term 1 Food- Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	**Designing** • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas **Making** • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose **Evaluating** • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements	. • Understand how key chefs have influenced eating habits to promote varied and healthy diets. • 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	Finishing Rubbing in Knead Bran Dough Endosperm Germ Yeast Unleavened bread Rise
Electrical systems - More complex switches and circuits (including programming, monitoring and control)	Please see projects on a page		
Structures - Frame structures	**Designing** • Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.	• Research key events and individuals relevant to frame structures	Modelling Compression Strut Tension Tie

	• Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches **Making** • Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Use finishing and decorative techniques suitable for the product they are designing and making. **Evaluating** • Investigate and evaluate a range of existing frame structures. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.	• Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project	Diagonal Horizontal Vertical Triangulation Frame structures
Mechanisms - Mechanical Systems - Pulleys or gears	**Designing** • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. **Making** • Produce detailed lists of tools, equipment and materials. •Formulate step by step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost **Evaluating** • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.	• Investigate famous manufacturing and engineering companies relevant to the project. • 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	Pulleys and Gears Pulley Gear Drive belt Gearing up or down Mechanical system Driver Follower Mesh Motor spindle

	• Consider the views of others to improve their work.		
Food - Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	**Designing** • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas **Making** • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose **Evaluating** • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements	. • Understand how key chefs have influenced eating habits to promote varied and healthy diets. • 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	Finishing Rubbing in Knead Bran Dough Endosperm Germ Yeast Unleavened bread Rise
Textiles - Combining different fabric shapes (including computer-aided design)	**Designing** • Generate innovative ideas through research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. **Making** • Produce detailed lists of equipment and fabrics relevant to their tasks.	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.	Mock up Pattern/template Seam allowance Specification Tacking Working drawing CAD CAM

	• 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. **Evaluating** • Investigate and analyse textile products linked to their final product. • Compare the final product to the original design specification. • Test products with intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work.		

DT National curriculum in England

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Key stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] apply their understanding of computing to program, monitor and control their products.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

The progression grid outlines the specific knowledge which pupils are expected to learn in each phase, along with specific vocabulary to support this understanding.

Master Practical Skills

At EYFS:	At Key Stage 1:	At Lower Key Stage 2:	At Upper Key Stage 2:
	✓ Cut, peel or grate ingredients safely and hygienically ✓ Measure or weigh using measuring cups or electronic scales Assemble or cook ingredients ✓ Cut materials safely using tools provided ✓ Measure and mark out to the nearest centimetre ✓ Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling) ✓ Demonstrate a range of joining techniques (such as gluing, using hinges or combining materials to strengthen) ✓ Shape textiles using templates ✓ Join textiles using running stitch ✓ Colour and decorate textiles using number of techniques (such as dyeing, adding sequins or printing) ✓ Diagnose faults in battery operated devices (such as low battery, water damage) ✓ Model designs using software ✓ Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products ✓ Create products using levers, wheels and winding mechanisms	✓ Prepare ingredients hygienically using appropriate utensils ✓ Measure ingredients to the nearest gram accurately ✓ Follow a recipe ✓ Assemble or cook ingredients ✓ Cut materials accurately and safely by selecting appropriate tools ✓ Measure and mark out to the nearest millimetre ✓ Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material ✓ Select appropriate joining techniques ✓ Understand the need for a seam allowance ✓ Join textiles with appropriate stitching ✓ Select most appropriate techniques to decorate textiles ✓ Create series and parallel circuits ✓ Control and monitor models using software designed for this purpose ✓ Choose suitable techniques to construct products or to repair items ✓ Strengthen materials using suitable techniques Use scientific knowledge of the transference forces to choose appropriate mechanisms for a product (e.g. levers)	✓ Understand the importance of correct storage and handling of ingredients ✓ Measure accurately and calculate ratios of ingredients to scale up or down from a recipe ✓ Demonstrate a range of baking and cooking techniques ✓ Create and refine recipes, including ingredients, methods, cooking times and temperatures ✓ Cut materials with precision and refine the finish with appropriate tools ✓ Show an understanding of the qualities of materials to choose appropriate tools to cut and shape ✓ Create objects that employ a seam allowance ✓ Join textiles with a combination of stitching techniques ✓ Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles ✓ Create circuits using electronic kits that employ a number of components ✓ Write code to control and monitor models or products ✓ Develop a range of practical skills to create products ✓ Convert rotary motion to linear using cams ✓ Use innovative combinations of electronics and mechanics in product design

Design, Make, Evaluate and Improve

At EYFS:	At Key Stage 1:	At Lower Key Stage 2:	At Upper Key Stage 2:
	✓ Design products that have a clear purpose and intended user ✓ Make products, refining the design as work progresses ✓ Use software to design	✓Design with purpose by identifying opportunities to design ✓Make products by working efficiently ✓Refine work and techniques as work progresses, continually evaluating the product design ✓Use software to design and represent product designs	✓ Design with the user in mind, motivated by the service a product will offer ✓ Make products through stages of prototypes, making continual refinements ✓ Ensure products have a high-quality finish, using art skills, where appropriate ✓ Use prototypes, cross-sectional diagrams and computer-aided designs to represent designs

Take Inspiration from design throughout history

At EYFS:	At Key Stage 1:	At Lower Key Stage 2:	At Upper Key Stage 2:
	✓ Explore objects and designs to identify likes and dislikes of the designs ✓ Suggest improvements to existing designs ✓ Explore how products have been created	✓ Identify some of the great designers in all of the areas of study to generate ideas for designs ✓ Improve upon existing designs, giving reasons for choices ✓ Disassemble products to understand how they work	✓ Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices ✓ Create innovative designs that improve upon existing designs ✓ Evaluate the design of products so as to suggest improvements to the user experience
	Design, Designer, Materials, Tools, Brief, Product, Evaluate, Label, Technology, Problem-solving	**Design, Technology, Product, Intended User, Annotated Sketch, Component, Design Criteria, Computer-Aided Design**	**Design, Technology, Product, Intended User, Design Criteria, Cross-Sectional Diagram, Exploded Diagram, Innovation**