

Design Technology at Holy Trinity CE Primary



“Design is not just what it looks like and feels like. Design is how it works.”

Steve Jobs



Our curriculum **intent for Design Technology** is that every child will:

- experience a variety of creative and practical opportunities to design, make and evaluate products and feel proud of their achievements.
- develop the knowledge, understanding and the skills to engage in an interactive process of designing and making.
- work in a range of relevant contexts such as: the home and school, gardens and playgrounds, the local community, industry and the wider environment.
- develop a love for cooking and to apply the principles of nutrition and health eating.

Implementation of the Design Technology Curriculum at Holy Trinity

Design and Technology skills and understanding are built into every lesson, following a practical and interactive process of designing and making. Through revisiting and consolidating skills, lesson planning and resourcing help children build on prior knowledge alongside introducing new skills, knowledge and challenge. The revision and introduction of key vocabulary are built into each lesson. Our children learn to take risks, be reflective, innovative, enterprising and resilient. Through the evaluation of past and present technology they can reflect upon the impact of Design Technology on everyday life and the wider world. Through these lessons, we inspire pupils and practitioners to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.

As a school and in accordance with the National Curriculum's Programme of Study, we 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.

The Impact of the Design Technology Curriculum at Holy Trinity

The impact of Kapow Primary's based scheme is constantly monitored through both formative and summative assessment opportunities. The curriculum is developed in such a way that children are equipped with a range of skills to enable them to succeed in their primary education and be innovative and resourceful members of society.

Children at Holy Trinity CE Primary School will:

- demonstrate a love of DT and an interest in further study
- meet the end of key stage expectations outlined in the National curriculum for Design and Technology
- have evidence of work showing a range of DT based topics covered, cross curriculum links and work adapted to their individual needs
- use and combine tools to carry out different processes for shaping, decorating, and manufacturing products.
- apply a repertoire of skills, knowledge and understanding to produce high quality, innovative outcomes, including models, prototypes, CAD, and products to fulfil the needs of users, clients, and scenarios.
- gain knowledge on key individuals, inventions and events in history and of today that impact our world.

How does Design Technology fit into our School Vision?



Design Technology links/actions:

- Engage and inspire all pupils and give them regular opportunities to take part in Design and Technology lessons.
- Offer cross-curricular learning opportunities to enable children to make connections and explore an in depth curriculum.
- Share examples of learning and achievement within the school through displays, photos, work samples as well as celebrating achievements with families on the school website and in the newsletter.
- Provide CPD for staff in the Design and Technology National Curriculum.
- Ensure resources such as tools and materials are available and of a high standard to enable staff to undertake their job effectively and efficiently.
- Liaise with cluster schools to look at Design and Technology provision and how it is delivered.
- Ensure pupils have access to high quality resources, tools and materials.
- Look into ways of funding further DT equipment using local schools and companies.
- Ensure children's work is celebrated and shared throughout all available platforms: classrooms, corridors, communal areas in school, through topic books, on the website, in home learning projects etc.
- Excite the children by creating fun whole school competitions using completed models.
- Immerse children in rich topic based learning by making links whenever appropriate.
- Where possible make local links within our curriculum approach through trips and visits.
- Forge links with other DT subject leaders across the local cluster.

Holy Trinity CE Primary Design Technology Overview

Autumn		Spring	Summer	Stand alone lessons
EYFS	COOKING & NUTRITION To celebrate Harvest festival we will make bread, using various fine motor skills. As part of our Celebrations Topic, we will also bake cupcakes using measuring skills.	MAKE Construct a boat from junk modelling that can float. Design and create a bookmark.	MAKE Seasonal Project: Design and build minibeast homes.	
	FOREST SCHOOL We will learn to use a range of tools to perform simple tasks like cutting, peeling etc. Pumpkin Soup	COOKING & NUTRITION We will learn about working safely and hygienically. FOREST SCHOOL We will learn to use various equipment to help us cook outside- Pancakes, marshmallows, eggy bread. We will design and construct boats for floating.		
<u>Year 1 Design Technology Knowledge Organisers</u>				
Year 1	COOK Make dips & dippers (sweet or savoury). (4 lessons) End task: Pupils design, make, taste and evaluate their own recipe dips and dippers (sweet or savoury) to share with their class. Pupils will know: - the difference between fruits and vegetables. - that some foods typically known as vegetables are actually fruits (e.g. cucumber). - that a blender is a machine which mixes ingredients together into a smooth liquid. - that a fruit has seeds and a vegetable does not. - that fruits grow on trees or vines. - that vegetables can grow either above or below ground. - that vegetables can come from different parts of the plant.	SEW Introduction to sewing design and make a puppet. (4 lessons) End task: Pupils will design and make a puppet, joining two pieces of fabric together and decorate it. Pupils will know: - To know that 'joining technique' means connecting two pieces of material together. - To know that there are various temporary methods of joining fabric by using staples, glue or pins. - To understand that different techniques for joining materials can be used for different purposes. - To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. - To know that drawing a design idea is useful to see how an idea will look.	MAKE Constructing a Windmill. (4 lessons) End task: Pupils will design and make a stable structure and turbine suitable for the client (a mouse). Pupils will know: - To understand that the shape of materials can be changed to improve the strength and stiffness of structures. - To understand that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses). - To understand that axles are used in structures and mechanisms to make parts turn in a circle. - To begin to understand that different structures are used for different purposes. - To know that a structure is something that has been made and put together.	Mechanisms Wheels and axles (Lesson 1 & 4)

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

Pupils will be able to: • Design carton packaging for their dip by-hand or on ICT software. • Chop fruit and vegetables safely to make a dip and dippers. • Identify if a food is a fruit or a vegetable. • Taste and evaluate different food combinations. • Describe appearance, smell and taste. • Suggest information to be included on packaging. Key Vocabulary: Blender, Carton, Fruit, Healthy, Ingredients, Peel, Peeler, Recipe, Slice, Smoothie, Stencil, Template, Vegetable MAKE Make a Christmas card with a moving part for a family member. Pupils will know: • that a mechanism is the parts of an object that move together. • that a slider mechanism moves an object from side to side. • that a slider mechanism has a slider, slots, guides and an object. • that bridges and guides are bits of card that purposefully restrict the movement of the slider. Pupils will be able to: • Explain how to adapt mechanisms, using bridges or guides to control the movement. • Design a moving story card for a given audience.	Pupils will be able to: • Using a template to create a design for a puppet. • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction. • Reflecting on a finished product, explaining likes and dislikes. • Key Vocabulary: Decorate, Design, Fabric, Glue, Model, Hand puppet, Safety pin, Staple, Stencil, Template COOKING & NUTRITION Visit to Pizza Express to create our own pizzas, taste and evaluate our selected foods. We will evaluate how healthy they are and evaluate how they could be improved.	Pupils will be able to: • Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design. • Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure. Key Vocabulary: • Client, Design, Evaluation, Net, Stable, Strong, Test, Weak, Windmill	
---	---	--	--

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

	- Follow a design to create moving models that use levers and sliders. - Test a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. - Review the success of a product by testing it with its intended audience. Key Vocabulary: Assemble, Design, Evaluation, Mechanism, Model, Sliders, Stencil, Target audience, Template, Test			
--	--	--	--	--

Year 2 Design Technology Knowledge Organisers

Year 2	SEW Design and make a pouch. (4 lessons) End task: Pupils will design, make and evaluate a pouch, they will use running stitch and decorate their pouch. It is for their own use at home (air pods, money etc). Pupils will know: - that sewing is a method of joining fabric. - that different stitches can be used when sewing. - the importance of tying a knot after sewing the final stitch. - that a thimble can be used to protect my fingers when sewing. Pupils will be able to: - Design a pouch. - Select and cut fabrics for sewing. - Decorate a pouch using fabric glue or running stitch. - Thread a needle. - Sew running stitch, with evenly spaced, neat, even stitches to join fabric. - Neatly pin and cut fabric using a template. - Evaluate the quality of the stitching on others' work.	MAKE A moving monster. (4 lessons) End task: Pupils will use a template to create a monster head. They will add personal designs. They will add linkages to move the jaw. Pupils will know: - that mechanisms are a collection of moving parts that work together as a machine to produce movement. - that there is always an input and an output in a mechanism. - that an input is the energy that is used to start something working. - that an output is the movement that happens as a result of the input. - that a lever is something that turns on a pivot. - that a linkage mechanism is made up of a series of levers. Pupils will be able to: - Create a design criteria for a moving monster as a class. - Design a moving monster for a specific audience in accordance with a design criteria. - Make linkages using card for levers and split pins for pivots.	MAKE Fairground wheel (4 lessons) End task: Pupils will design and make and evaluate a structure with a moving wheel. Pupils will know: - that different materials have different properties and are therefore suitable for different uses. - the features of a Ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder. - that it is important to test my design as I go along so that I can solve any problems that may occur. Pupils will be able to: - Select a suitable linkage system to produce the desired motions. - Design a wheel. - Select appropriate materials based on their properties. - Select materials according to their characteristics. - Follow a design brief. - Evaluate different designs.	Make a healthy wrap (2 lessons) (A Balanced Diet Unit Lesson 3)
--------	--	---	---	---

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

	Identify aspects of their peers' work that they particularly like and why. Key Vocabulary: Accurate, Fabric, Knot, Pouch, Running-stitch, Sew, Shape, Stencil, Template, Thimble	- Experiment with linkages adjusting the widths, lengths and thicknesses of card used. - Cut and assemble components neatly. - Evaluate own designs against design criteria. - Use peer feedback to modify a final design. Key Vocabulary: Evaluation, Input, Lever, Linear motion, Linkage, Mechanical, Mechanism, Motion, Oscillating motion, Output, Pivot, Reciprocating motion, Rotary motion, Survey	Test and adapt a design. Key Vocabulary: Axle, Decorate, Evaluation, Ferris wheel, Mechanism, Stable, Strong, Test, Waterproof, Weak	
--	--	---	--	--

Year 3 Design Technology Knowledge Organisers

	TEXTILES Design and create a cushion. End Task: Pupils design and create a cushion using fabric to be used at home learning the skill of sewing. They will make the product appealing and fit for purpose. Pupils will know: - that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric. - that when two edges of fabric have been joined together it is called a seam. - that it is important to leave space on the fabric for the seam. - that some products are turned inside out after sewing so the stitching is hidden. Pupils will be able to: - Measure, mark out, cut, shape, assemble, join, combine and apply finishing techniques. - Design and make a template from an existing cushion and applying individual design criteria. - Follow design criteria to create a cushion.	MODEL MAKING Construct a castle End Task: Pupils design and create a complex castle structure using simple geometric shapes. Pupils will know: - that wide and flat based objects are more stable. - the importance of strength and stiffness in structures. - the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose. - that a facade is the front of a structure. - that a castle needed to be strong and stable to withstand enemy attack. Pupils will be able to: - Design a castle with key features to appeal to a specific person/purpose. - Draw and label a castle design using 2D shapes. - Design and/or decorate a castle tower on CAD software.	COOK Healthy snacks - baking End task: Pupils design and create a savoury dish (tart) learning which products are seasonal and local whilst building on their knowledge of a healthy diet. Pupils will know: - that not all fruits and vegetables can be grown in the UK. - that climate affects food growth. - that vegetables and fruit grow in certain seasons. - that cooking instructions are known as a 'recipe'. - that imported food is food that has been brought into the country. Pupils will be able to: - Create a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. - Know how to prepare themselves and a workspace to cook safely in, learning	Mechanical systems Pneumatic toys (2 lessons)
--	---	---	---	---

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

	- Select and cut fabrics with ease using fabric scissors. - Thread needles with greater independence. - Tie knots with greater independence. - Sew cross stitch to join fabric. - Decorate fabric using appliqué. - Complete design ideas with stuffing and sewing the edges. - Evaluating an end product and thinking of other ways in which to create similar items. Key Vocabulary: Accurate, Applique, Cross-stitch, Cushion, Decorate, Detail, Fabric, Patch, Running-stitch, Seam, Stencil, Stuffing, Target audience, Target customer, Template	- Construct a range of 3D geometric shapes using nets. - Create special features for individual designs. - Make facades from a range of recycled materials. - Evaluate own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. - Suggest points for modification of the individual designs. Key Vocabulary: 2D shapes, 3D shapes, Castle, Design criteria, Evaluate, Façade, Feature, Flag, Net, Recyclable, Scoring, Stable, Strong, Structure, Tab, Weak	the basic rules to avoid food contamination. - Follow the instructions within a recipe. - Establish and use design criteria to help test and review dishes. - Describe the benefits of seasonal fruits and vegetables and the impact on the environment. - Suggest points for improvement when making a seasonal tart. Key Vocabulary: Climate, Dry climate, Exported, Imported, Mediterranean climate, Nationality, Nutrients, Polar climate, Recipe, Seasonal food, Seasons, Temperate climate, Tropical climate	
--	--	---	--	--

Year 4 Design Technology Knowledge Organisers

Year 4	TEXTILES Fastenings End task: Pupils analyse and evaluate a range of existing fastenings, then devise a list of design criteria to design, generate templates and make a fabric book sleeve. Pupils will know: - that a fastening is something that holds two pieces of material together. - that different fastening types are useful for different purposes. - that creating a mock-up (prototype) of their design is useful for checking ideas and proportions. Pupils will be able to: - Write design criteria for a product, articulating decisions made. - Design a personalised book sleeve.	STRUCTURES Design, make and evaluate a pavilion. (Roman Bath, Forum, Basilica etc) End Task: Pupils design and create a free-standing functional pavilion type structure designed to take weight. Pupils will know: - what a frame structure is. - that a 'free-standing' structure is one that can stand on its own. - that a pavilion is a decorative building or structure for leisure activities. - that cladding can be applied to structures for different effects. - that aesthetics are how a product looks. Pupils will be able to: - Design a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.	COOK Curry/stew with unleavened bread. (Greek influence- moussaka, Greek meatballs, spinach and feta pie) End Task: Pupils design and create a savoury feast learning how food is grown and processed as well as understanding the importance of a healthy diet. Pupils will know: - that the amount of an ingredient in a recipe is known as the 'quantity'. - that it is important to use oven gloves when removing hot food from an oven. - the importance of budgeting while planning ingredients for the meal. Pupils will be able to: - Peel, chop, slice, mix, cook, - Know where food comes from - Understand seasonality - Following a recipe.	MECHANICAL SYSTEMS Design, make and evaluate a slingshot car. (Trojan horse) End Task: pupils design and create an accurate, functioning chassis.
--------	---	---	---	--

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

	• Make and test a paper template with accuracy and in keeping with the design criteria. • Measure, mark and cut fabric using a paper template. • Select a stitch style to join fabric. • Sew neatly using small regular stitches. • Incorporate a fastening to a design. • Test and evaluate an end product against the original design criteria. Key vocabulary: Criteria, fastening, mock-up, fabric, fix, stitch, template	• Build frame structures designed to support weight. • Create a range of different shaped frame structures. • Make a variety of free-standing frame structures of different shapes and sizes. • Select appropriate materials to build a strong structure and for the cladding. • Reinforce corners to strengthen a structure. • Create a design in accordance with a plan. • Learn to create different textural effects with materials. MICRO:BITS- Volcano Animations Learning objectives Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation Key Vocabulary-Aesthetic, Cladding, Design criteria, Evaluation, Frame structure, Function, Inspiration, Pavilion, Reinforce, Stable, Structure, Target audience, Target customer, Texture, Theme	• Cook safely, following basic hygiene rules. • Adapt a recipe. • Evaluate a recipe, considering: taste, smell, texture and appearance. • Describe the impact of the budget on the selection of ingredients. • Evaluate and comparing a range of products. • Suggest modifications. Key Vocabulary: design criteria, research, texture, innovative, aesthetic, measure, cross-contamination, diet, processed, packaging	
--	--	---	--	--

Year 5 Design Technology Knowledge Organisers

	MODEL MAKING Design, make and evaluate a stuffed toy for your buddy. End Task: Pupils design and create a stuffed toy for their buddy at school, developing their sewing skills (blanket stitch) as well as learning how to create a 3D product using fabric. Pupils will know:	STRUCTURES Design, make and evaluate a playground. End Task: Pupils design and create three different apparatus structures for a playground, developing their marking, measuring and making. Create the landscape for the apparatus too. Pupils will know:	ELECTRICAL SYSTEMS Doodlers End Task: Pupils design and create a Doodler that uses an electrical circuit & pens to draw! Pupils will know: • To know that, in a series circuit, electricity only flows in one direction.	Food and Nutrition: Fruit crumble (2 lessons)
--	--	---	---	---

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

- that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. - that it is easier to finish simpler designs to a high standard. - that soft toys are often made by creating appendages separately and then attaching them to the main body. - that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely. Pupils will be able to: - Designing a stuffed toy considering the main component shapes required and creating an appropriate template. - Considering the proportions of individual components. - Creating a 3D stuffed toy from a 2D design. - Measuring, marking and cutting fabric accurately and independently. - Creating strong and secure blanket stitches when joining fabric. - Threading needles independently. - Using appliqué to attach pieces of fabric decoration. - Sewing blanket stitch to join fabric. - Applying blanket stitch so the spaces between the stitches are even and regular. - Testing and evaluating an end product and giving points for further improvements. Key Vocabulary: Blanket stitch, running stitch, lining, Accurate, Annotate, Appendage, Blanket-stitch, Design criteria, Detail, Evaluation, Fabric, Sew, Shape, Stuffed toy, Stuffing, Template	- that structures can be strengthened by manipulating materials and shapes. - what a 'footprint plan' is. - that in the real world, design can impact users in positive and negative ways. - that a prototype is a cheap model to test a design idea. Pupils will be able to: - Measure, mark out, cut, shape, assemble, join, combine and apply finishing techniques - Select the correct tools - Use L joints - Make a prototype (lollipop sticks?) - Design a playground featuring a variety of different structures, giving consideration to how the structures will be used. - Consider effective and ineffective designs. - Build a range of play apparatus structures drawing upon new and prior knowledge of structures. - Measure, mark and cut wood to create a range of structures. - Use a range of materials to reinforce and add decoration to structures. - Improve a design plan based on peer evaluation. - Test and adapt a design to improve it as it is developed. - Identify what makes a successful structure. Key Vocabulary: Apparatus, design criteria, equipment, playground, landscape features, cladding	- To know when there is a break in a series circuit, all components turn off. - To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. - To know a motorised product is one which uses a motor to function. Pupils will be able to: - Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. - Developing design criteria based on findings from investigating existing products. - Developing design criteria that clarifies the target user. - Altering a product's form and function by tinkering with its configuration. - Making a functional series circuit, incorporating a motor. - Constructing a product with consideration for the design criteria. - Breaking down the construction process into steps so that others can make the product. - Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. - Determining which parts of a product affect its function and which parts affect its form. - Analysing whether changes in configuration positively or negatively affect an existing product. - Peer evaluating a set of instructions to build a product. Key Vocabulary:	
--	--	---	--

			Circuit component, Configuration, Current, Develop, DIY, Investigate, Motor, Motorised, Problem solve, Product analysis, Series circuit, Stable, Target user	
<u>Year 6 Design Technology Knowledge Organisers</u>				
Year 6	TEXTILES Waistcoat! We will look at different types of textiles in connection with the Industrial Revolution. End Task: Pupils design and create a waistcoat in accordance with a specification learning the skill of sewing accurately. They will make the product appealing and fit for purpose. Pupils will know: - that it is important to design clothing with the client/target customer in mind. - that using a template (or clothing pattern) helps to accurately mark out a design on fabric. - the importance of consistently sized stitches. Pupils will be able to: - Design a waistcoat in accordance with a specification and design criteria to fit a specific theme. - Annotate designs. - Use a template when pinning panels onto fabric. - Mark and cut fabric accurately, in accordance with a design. - Sew a strong running stitch, making small, neat stitches and following the edge. - Tie strong knots. - Decorate a waistcoat – attaching objects using thread and adding a secure fastening. - Learn different decorative stitches. - Sew accurately with even regularity of stitches. - Evaluate work continually as it is created.	ELECTRICAL SYSTEMS & PRODUCTS Steady Hand Game: End Task: Pupils will design and develop a steady hand game using a series circuit, including housing and blackboard. Pupils will know: - that 'form' means the shape and appearance of an object. - the difference between 'form' and 'function'. - that 'fit for purpose' means that a product works how it should and is easy to use. - that 'form over purpose' means that a product looks good but does not work very well. - the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. - the diagram perspectives 'top view', 'side view' and 'back' Pupils will be able to: - Design a steady hand game, identifying and naming the components required. - Draw a design from three different perspectives. - Generate ideas through sketching and discussion. - Model ideas through prototypes. - Understand the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. - Construct a stable base for a game. - Accurately cut, fold and assemble a net.	COOK What could be healthier? End Task: Pupils will discover the farm to fork process. We will compare the nutritional value of existing sauces and develop a healthier recipe. Pupils will know: - where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues. - that I can adapt a recipe to make it healthier by substituting ingredients. - that I can use a nutritional calculator to see how healthy a food option is. - that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. Pupils will be able to: - Adapt a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. - Write an amended method for a recipe to incorporate the relevant changes to ingredients. - Design appealing packaging to reflect a recipe. - Cut and prepare recipes safely. - Using equipment safely, including knives, hot pans and hobs. - Know how to avoid cross-contamination. - Follow a step-by-step method carefully to make a recipe.	Raft construction whilst on residential visit.

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Key Vocabulary: Accurate, Adapt, Annotate, Design, Design criteria, Detail, Fabric, Fastening, Knot, Properties, Running-stitch, Seam, Sew, Shape, Target audience, Target customer, Template, Thread, Unique, Waistcoat, Waterproof	- Decorate the base of the game to a high-quality finish. - Make and test a circuit. - Incorporate a circuit into a base. - Test their own and others' finished games, identifying what went well and making suggestions for improvement. - Gather images and information about existing children's toys. - Analyse a selection of existing children's toys Key Vocabulary: Assemble, battery, battery pack, benefit, bulb bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, fine motor skills, fit for purpose form, function, gross motor skills, insulator, LED user	- Identify the nutritional differences between different products and recipes. - Identify and describe healthy benefits of food groups. Key Vocabulary: Beef, reared, processed, ethical, diet, ingredients Supermarket, farm, balanced MICRO:BITS: Energy Awareness End Task: To make a proposal of suggestions for reducing energy use, saving money and reducing our impact on climate change. Key Vocabulary:	
--	---	---	--

Skills Progression	
Designing - Understanding contexts, users and purposes	
Key Stage 1 - work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment - state what products they are designing and making - say whether their products are for themselves or other users - describe what their products are for - say how their products will work - say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas	Key Stage 2 - work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment - describe the purpose of their products - indicate the design features of their products that will appeal to intended users - explain how particular parts of their products work In lower KS2 pupils should also: - gather information about the needs and wants of particular individuals and groups - develop their own design criteria and use these to inform their ideas In upper KS2 pupils should also: - carry out research, using surveys, interviews, questionnaires and web-based resources

	- identify the needs, wants, preferences and values of particular individuals and groups - develop a simple design specification to guide their thinking
Designing - Generating, developing, modelling and communicating ideas	
Key Stage 1 - generate ideas by drawing on their own experiences - use knowledge of existing products to help come up with ideas - develop and communicate ideas by talking and drawing - model ideas by exploring materials, components and construction kits and by making templates and mock-ups - use information and communication technology, where appropriate, to develop and communicate their ideas	Key Stage 2 - share and clarify ideas through discussion - model their ideas using prototypes and pattern pieces - use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas - use computer-aided design to develop and communicate their ideas In lower KS2 pupils should also: - generate realistic ideas, focusing on the needs of the user - make design decisions that take account of the availability of resources In upper KS2 pupils should also: - generate innovative ideas, drawing on research - make design decisions, taking account of constraints such as time, resources and cost
Making – Planning	
Key Stage 1 - plan by suggesting what to do next - select from a range of tools and equipment, explaining their choices - select from a range of materials and components according to their characteristics	Key Stage 2 - select tools and equipment suitable for the task - explain their choice of tools and equipment in relation to the skills and techniques they will be using - select materials and components suitable for the task - explain their choice of materials and components according to functional properties and aesthetic qualities In lower KS2 pupils should also: - order the main stages of making In upper KS2 pupils should also: - produce appropriate lists of tools, equipment and materials that they need - formulate step-by-step plans as a guide to making
Making – Practical skills and techniques	
Key Stage 1 - follow procedures for safety and hygiene - use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components - measure, mark out, cut and shape materials and components	Key Stage 2 - follow procedures for safety and hygiene - use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

• assemble, join and combine materials and components • use finishing techniques, including those from art and design	In lower KS2 pupils should also: • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy In upper KS2 pupils should also: • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • use techniques that involve a number of steps • demonstrate resourcefulness when tackling practical problems
Evaluating – own ideas and products	
Key Stage 1 • talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • suggest how their products could be improved	Key Stage 2 • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work In lower KS2 pupils should also: • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products In upper KS2 pupils should also: • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • evaluate their ideas and products against their original design specification
Evaluating – Existing products	
Key Stage 1 In KS1 pupils should explore: • what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products	Key Stage 2 In KS2 pupils should investigate and analyse: • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants In lower KS2 pupils should also investigate and analyse:

	• who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused In upper KS2 pupils should also investigate and analyse: • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose
Evaluating – key events and individuals	
Key Stage 1 Not a requirement in KS1	Key Stage 2 • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
Technical Knowledge – Making Products Work	
Key Stage 1 Across KS1 pupils should know: • about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable • that a 3-D textiles product can be assembled from two identical fabric shapes • that food ingredients should be combined according to their sensory characteristics • the correct technical vocabulary for	Key Stage 2 Across KS2 pupils should know: • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking In lower KS2 pupils should also know: • how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • that a single fabric shape can be used to make a 3D textiles product • that food ingredients can be fresh, pre-cooked and processed In upper KS2 pupils should also know: • how mechanical systems such as cams or pulleys or gears create movement

	• how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or substituting one or more ingredients
Cooking and Nutrition – Where Food Comes From	
Key Stage 1 Across KS1 pupils should know: • that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught	Key Stage 2 Across KS2 pupils should know: • that a recipe can be adapted a by adding or substituting one or more ingredients • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world In upper KS2 pupils should also know: • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
Cooking and Nutrition – Food Preparation, Cooking and Nutrition	
Key Stage 1 Across KS1 pupils should know: • how to name and sort foods into the five groups in the Eatwell Guide • that everyone should eat at least five portions of fruit and vegetables every day • how to prepare simple dishes safely and hygienically, without using a heat source • how to use techniques such as cutting, peeling and grating	Key Stage 2 Across KS2 pupils should know: • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking In lower KS2 pupils should also know: • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell Guide • that to be active and healthy, food and drink are needed to provide energy for the body In upper KS2 pupils should also know: • that recipes can be adapted to change the appearance, taste, texture and aroma • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health

National Curriculum: Design Technology

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**

Subject Content

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

'I know that there is nothing better for people than to be happy and to do good while they live.' Ecclesiastes 3:12

Design Technology at Holy Trinity CE Primary School

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.