

"Enjoy failure and learn from it. You can never learn from success." James Dyson

VISION We believe that Design Technology (DT) encourages inquisition and imagination, and promotes an engagement of children who may not ordinarily enjoy practical, hands-on activities. Design Technology teaches children to be aware of the world around them, and to make rational, economic and ecological based decisions, and to understand how their decisions affect people and the environment. In lessons, pupils explore different questions that life presents them, and develop skills and attitudes to tackle, investigate and find answers to these questions. Pupils will also work as part of a team to solve problems, and take part in class and group discussion, working through different roles, and taking on board constructive criticism. Children look at different situations around the world and consider ways in which Design and Technology could provide positive contributions and improve the quality of life.



Brampford Speke C of E Primary School

DT Overview



EYFS 3-4	Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them. PSED Use large-muscle movements to wave flags and streamers, paint and make marks. PD Choose the right resources to carry out their own plan. PD Use one-handed tools and equipment, for example, making snips in paper with scissors. PD Explore how things work. UW Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. EA&D Explore different materials freely, in order to develop their ideas about how to use them and what to make. EA&D Develop their own ideas and then decide which materials to use to express them. EA&D Create closed shapes with continuous lines, and begin to use these shapes to represent objects. EA&D
EYFS R	Progress towards a more fluent style of moving, with developing control and grace. PD Develop their small motor skills so that they can use a range of tools competently, safely and confidently. PD Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. PD Explore, use and refine a variety of artistic effects to express their ideas and feelings. EA&D Return to and build on their previous learning, refining ideas and developing their ability to represent them. EA&D Create collaboratively, sharing ideas, resources and skills. EA&D
EYFS ELG	Use a range of small tools, including scissors, paintbrushes and cutlery. PD Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. EA&D Share their creations, explaining the process they have used. EA&D

		Autumn A	Spring A	Summer A	Autumn B	Spring B	Summer B
KS1	Unit Overview	Cooking and Nutrition: Balanced Diet Explore the main food groups and how they contribute to a balanced diet. Taste and evaluate ingredients, then design, make and evaluate a healthy wrap that meets a design brief. EYFS – soup making	Textiles: Pouches Develop sewing skills by creating a running stitch. Use a template to prepare and cut fabric, join two pieces to make a pouch, then decorate the finished product. EYFS – bookmarks	Mechanisms: Wheels and Axles Explore how wheels and axles create movement. Make and compare wheel designs, then design, construct, decorate and evaluate a pull-along toy for a particular user.	Structures: Baby Bear's Chair Explore stability and methods to strengthen structures, to understand Baby Bear's chair weaknesses and develop an improved solution for him to use.	Mechanisms: Fairground Wheel Building a rotating fairground wheel with a free-standing structure, this unit offers a simplified wheel design made from repurposed materials and an additional lesson where children design and conduct a survey to gather opinions. EYFS - boats	Textiles: puppets Explore methods of joining fabric. Design and make a character-based hand puppet using a preferred joining technique, before decorating. EYFS – bookmarks
	Key Outcomes	Name the main food groups and identify foods belonging to each group. Recognise whether a meal contains a balance of food groups. Describe the taste, texture and smell of different foods. Select and use appropriate equipment to prepare ingredients. Choose balanced combinations of ingredients. Generate wrap ideas, considering flavour combinations. Design and make a wrap that meets the design criteria. Evaluate the finished wrap against the design criteria.	Thread a needle and secure the thread with a knot. Sew a running stitch using regular-sized stitches. Use a template to mark and cut fabric accurately. Join two pieces of fabric using a running stitch. Follow a simple design to construct a pouch. Select suitable materials to decorate the pouch. Decorate using stitching or fabric glue. Evaluate the appearance and construction of the finished pouch.	Explain how wheels and axles allow a product to move. Select suitable tools to cut and shape materials. Estimate and mark the centre of a circular wheel. Create wheels that are round and turn smoothly. Test and compare different wheel designs. Identify the needs of the intended user. Draw and label a design for a pull-along toy. Construct and decorate a product containing a simple mechanism. Evaluate the product against its design criteria.	Identify man-made and natural structures. Identify stable and unstable structural shapes. Contribute to discussions. Identify features that make a chair stable. Work independently to make a stable structure, following a demonstration. Explain how their ideas would be suitable for Baby Bear. Produce a model that supports a teddy, using the appropriate materials and construction techniques. Explain how they made their model strong, stiff and stable.	Describe how axles help wheels move a vehicle and design and label a working fairground wheel. Evaluate different designs. Describe the properties of different materials and select appropriate materials for the wheel. Build a stable structure, test elements of the design and adapt the design as necessary. Make the wheel rotate, evaluate a wheel mechanism and adapt it as necessary. Recall that a survey is used to find out what people like, tally results and use the results to inform the design. Add pods for the correct number of people and ensure that the pods stay upright when rotating around a fixed point. Explain the decisions for the pod design.	Join fabrics together using pins, staples or glue. Design a puppet and use a template. Join their two puppets' faces together as one. Decorate a puppet to match their design.
	Small Steps	1) Food groups 2) Balanced meals 3) Preparing ingredients 4) Taste testing ingredients 5) Planning recipes 6) Creating and evaluating wraps	1) Running stitch 2) Using a template 3) Making a pouch 4) Decorating a pouch	1) Wheels 2) Improving wheels: Part one 3) Improving wheels: Part two 4) Designing a pull-along toy 5) Making a pull-along toy	1) Exploring stability 2) Strengthening materials 3) Making Baby Bear's chair 4) Fixing and testing Baby Bear's chair	1) Design a fairground wheel 2) Planning the build 3) Building the frame and wheels 4) Surveying design opinions 5) Adding pods and decoration	1) Joining fabrics 2) Designing a puppet 3) Making and joining a puppet 4) Decorating and embellishing a puppet

		Autumn C	Spring C	Summer C
KS1	Unit Overview	Mechanisms: Making a Moving Monster Explore levers, linkages and pivots through existing products and experimentation, use this research to construct and assemble a moving monster. (EYFS – split pin monster)	Structures: Windmills Inspired by the song, ‘Mouse in a windmill’, design and construct a windmill for a client (mouse) to live in. Explore various types of windmill, how they work and their key features. EYFS windsocks	Cooking and Nutrition: Fruit and Vegetables Learn to distinguish between fruit and vegetables and where they grow. Design a fruit and vegetable smoothie and accompanying packaging.
KS1	Key Outcomes	Identify the correct terms for levers, linkages and pivots. Analyse popular toys with the correct terminology. Create functional linkages that produce the desired input and output motions. Design monsters suitable for children, which satisfy most of the design criteria. Evaluate their two designs against the design criteria, using this information and the feedback of their peers to choose their best design. Select and assemble materials to create their planned monster features. Assemble the monster to their linkages without affecting their functionality.	Identify some features that would appeal to the client (a mouse) and create a suitable design. Explain how their design appeals to the mouse. Make stable structures, which will eventually support the turbine, out of card, tape and glue. Make functioning turbines and axles that are assembled into the main supporting structure. Say what is good about their windmill and what they could do better.	Describe fruits and vegetables and explain why they are a fruit or a vegetable. Name a range of places that fruits and vegetables grow. Describe basic characteristics of fruit and vegetables. Prepare fruits and vegetables to make a smoothie.
KS1	Small Steps	1) Pivots, levers and linkages 2) Making linkages 3) Designing a monster 4) Making a monster	1) Can I Design a structure? 2) Can I assemble a structure? 3) Can I assemble a windmill? 4) Can I test and evaluate my design?	1) Fruit or vegetable? 2) Where fruit and vegetables grow 3) Smoothie ingredient tasting 4) Making smoothies

		Autumn A	Spring A	Summer A	Autumn B	Spring B	Summer B
KS2	Unit Overview	Structures: Bridges Test and analyse various types of bridge to determine their strength and stability. Explore material properties and sources, before marking, sawing and assembling a wooden truss bridge.	Mechanical Systems: Slingshot cars and catapults Using a range of materials, design and make a car with a working slingshot mechanism and house the mechanism using a range of nets.	Electrical Systems: Torches Identify the difference between electrical and electronic products. Evaluate a range of existing torches and their features, then develop a new functional torch design.	Cooking and Nutrition: Adapting a Recipe Work in groups to adapt an existing biscuit recipe, whilst taking into account the cost of the ingredients and other expenses against a set budget.	Textiles: Cross-stitch and Applique Learn and apply two new sewing techniques – cross-stitch and appliqué. Utilise these new skills to design and make a cushion or Egyptian collar.	Digital World: Electronic Charm Design, develop a program, house and promote a Micro:bit electronic charm to use in low-light conditions.
	Key Outcomes	Identify stronger and weaker shapes. Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. Identify beam, arch and truss bridges Use triangles to create simple truss bridges that support a load (weight). Cut beams to the correct size, using a cutting mat. Smooth down any rough-cut edges with sandpaper. Follow each stage of the truss bridge creation Complete a bridge, with varying ranges of accuracy and finish Identify some areas for improvement, reinforcing their bridges as necessary.	Work independently to produce an accurate, functioning car chassis. Design a shape that is suitable for the project. Attempt to reduce air resistance through the design of the shape. Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. Construct car bodies effectively. Conduct a trial accurately and draw conclusions and improvements from the results.	Identify electrical products and explain why they are useful. Help to make a working switch. Identify the features of a torch and how it works. Describe what makes a torch successful. Create suitable designs that fit the success criteria and their own design criteria. Create a functioning torch with a switch according to their design criteria.	Follow a recipe, with some support. Describe some of the features of a biscuit based on taste, smell, texture and appearance. Adapt a recipe by adding extra ingredients to it. Plan a biscuit recipe within a budget.	Use a cross-stitch to join two pieces of fabric together. Design and cut the template for a cushion. Use cross-stitch and appliqué to decorate a cushion face. Make a cushion that includes appliqué and cross-stitch.	Give a brief explanation of the digital revolution and/or remember key examples. Suggest a feature from the Micro:bit that is suitable for an eCharm. Write a program that initiates a flashing LED panel, or another pattern, on the Micro:bit when a button is pressed. Identify errors, if testing is unsuccessful, by comparing their code to a correct example. Explain the basic functionality of their finished program. Suggest key features for a pouch and assemble Describe what is meant by 'point of sale display' Follow basic design requirements using computer-aided design,

	Small Steps	1) Arch and beam bridges 2) Spaghetti truss bridges 3) Building bridges 4) Finalising bridges	1) Can I build a Chassis and launch mechanism? 2) Can I design the car body based on my design criteria? 3) Can I make the car body based on the design? 4) Can I assemble and test my product?	1) Electrical products 2) Evaluating torches 3) Torch design 4) Torch assembly	1) Following a recipe 2) Testing ingredients 3) Final design and budget 4) Biscuit bake-off	1) Cross-stitch and applique 2) Cushion design 3) Decorating a cushion 4) Assembling a cushion	1) Smart wearables 2) Programming an eCharm 3) eCharm Pouches 4) Point of Sale Display
		Autumn C	Spring C	Summer C	Autumn D	Spring D	Summer D
KS2	Unit Overview	Structures: Playgrounds Research existing playground equipment and their different forms, before designing and developing a range of apparatus to meet a list of specified design criteria.	Electrical systems: Steady hand game Understand what is meant by fit for purpose design and form follows function. Design and develop a steady hand game using a series circuit, including housing and backboard.	Digital World: Navigating the World Design and program a navigation tool to produce a multifunctional device for trekkers using CAD 3D modelling software. Pitch and explain the product to a guest panel.	Cooking and Nutrition: Eating Seasonally Learn about various fruits and vegetables, and when, where and why they are grown in different seasons. Discover the relationship between colour and health benefits.	Textiles: Stuffed toys Designing a stuffed toy and making decisions on materials, decorations and attachments (appendages) after learning how to sew a blanket stitch.	Mechanical systems: Gears and Pulleys Designing an eco-bike with gears and pulleys to harness the energy from an exercise bike or creating a functional pop-up book using levers, sliders, layers and spacers to create paper-based mechanisms.

	Key Outcomes	Create five apparatus designs, applying the design criteria to their work. Make suitable changes to their work after peer evaluation. Make roughly three different structures from their plans using the materials available. Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas. Secure their apparatus to a base. Make a range of landscape features using a variety of materials which will enhance their apparatus.	Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works). State what they like or dislike about an existing children's toy and why. Learn about skills developed through play and apply this knowledge in a survey of one or more children's toys. Identify the components of a steady hand game. Design a steady hand game of their own according to their design criteria, using four different perspective drawings. Create a secure base for their game, with neat edges, that relates to their design. Make and test a functioning circuit and assemble it within a case.	Incorporate key information from a client's design request Write a program that displays an arrow to indicate cardinal compass directions Identify errors (bugs) in the code and suggest ways to fix (debug) them. Evaluate a product concept against a list of design criteria with basic statements. Identify key industries that use 3D CAD modelling Recall and describe the name and use of key tools used in Tinkercad (CAD) Combine more than one object to develop a model Complete a product pitch plan that includes key information.	Explain that fruits and vegetables grow in different countries based on their climates. Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then. Know that eating seasonal fruit and vegetables has a positive effect on the environment. Design their own tart recipe using seasonal ingredients. Understand the basic rules of food hygiene and safety. Follow the instructions within a recipe.	Design a stuffed toy, considering the main component shapes of their toy. Create an appropriate template for their stuffed toy. Join two pieces of fabric using a blanket stitch. Neatly cut out their fabric. Use appliqué or decorative stitching to decorate the front of their stuffed toy. Use blanket stitch to assemble their stuffed toy, repairing when needed. Identify what worked well and areas for improvement.	Give examples of machines that use gears and/or pulleys. Describe how gears and pulleys work and their purpose. Design and make a gear and pulley system. Write a problem statement. Write questions for market research, provide feedback and research market competitors. Write and use a design brief to guide design. Evaluate a product against a set of design criteria, provide useful feedback and incorporate changes. Draw and annotate an eco-gadget bike design.
	Small Steps	1. Design a new playground 2. Building structures 3. Perfecting structures 4. Playground landscapes	1. Developing through play 2. Game plan 3. Base building 4. Electronics and assembly	1) Navigating the world 2) Programming a navigation tool 3) Product concept 4) 3D CAD models 5) Product pitch	1) Where in the world? 2) British seasonal foods 3) Rainbow food 4) Making tarts	1. Designing a stuffed toy 2. Blanket stitch 3. Details and appendages 4. Stuffed toy assembly	1. Gears 2. Improving your gear design 3. Pulleys 4. Eco-gadget bike project: Market research 5. Eco-gadget bike project: Design