

Being an Engineer at Barrs Court Primary



Reception Yearly Overview

Enquiry	General Overview
Term 1 (5 Weeks) Who are we?	Mechanical structures Investigate construction kits.
Term 1 (3 Weeks) What is darkness?	Mechanisms. Investigate how puppets move and how simplified mechanisms are used for movement (spilt pins) Investigate the construction of different torches- what are the key components?
Term 2 (7 Weeks) What stories do we know?	Mechanical structures Introduce children to mechanical structures in everyday life through pop-up books and construction kits. Food and hygiene. Bake gingerbread men
Term 3 (6 Weeks) What is a celebration?	Structures Make a class lion for CNY celebration. Develop joining techniques for use with cardboard, wool, cork and textiles. Develop the children's awareness of the aesthetic qualities of their work.
Term 4 (6 Weeks) What is growing?	Structures/ Food Make a vegetable soup to develop chopping and slicing skills.
Term 5 (5 Weeks) How do we care for our pets? (7)	Structures. Design and make a pet container. Select a method to join materials; staple, sticky tape, sew, glue.
Term 6 (7 Weeks) Who helps us?	Mechanisms. Use recycled materials to make their own vehicle (cereal box, doweling/ straw and cardboard wheels) Textiles: Develop skills for joining fabric to a structure or joining two pieces of material using staples.

Red Area Yearly Overview – 2024-2025

Enquiry	General Overview	Skill(s)
Term 1 (5 Weeks) What is my hat made of?	Design - research a variety of hats to inform their design. Make - a hat to fit their head/ peers head. Evaluate the effectiveness of the hat based on the design criteria.	Structures <ul style="list-style-type: none"> • Use templates in paper and card to create mock-ups. • Develop skills for joining paper, card and fabric. • Learn how to use pins, needles and thread to join pieces of fabric. • Build a hat structure, exploring how they can be made stronger, stiffer and sturdier.
Term 1 (2 weeks) How does Barrs Court Change? Autumn		
Term 2 (4 weeks) Who helps who?		
Term 2 (2 weeks) What do artists do?		
Term 3 (1 week) How does Barrs Court Change? Winter		
Term 3 (5 weeks) Where is Barrs Court Primary School?		
Where are we? (4) removed		
Term 4 (5 weeks) What am I?		
Term 4 (1 week) How does Barrs Court change? Spring		
Term 5 (4 weeks) How could we play in different ways?		
Term 5 (1 week) Term 6 (2 weeks) What grows near me?	I understand where food comes from. I can prepare fruit or vegetables for a snack.	Food <ul style="list-style-type: none"> • Children can describe the sensory characteristics of ingredients are appearance, taste (flavour), texture (mouth feel), and smell (aroma) • Children know that food needs to be prepared and cooked to make it safe to eat • Children can use a peeler to prepare carrots or other vegetables. I can use a knife safely to cut a vegetable or fruit.
Term 6 (3 weeks) How do we move around? and summer	Design - investigate how parts move in a pop-up book or card to inform their own design.	Mechanisms <ul style="list-style-type: none"> • Children can explain how simple mechanisms (sliders, levers, wheels and axles), produce different types of movement, they can talk about how winding mechanisms create a movement. • Children can use simple drawings to support their designing with inclusion of labels to identify materials, components and parts of their product.
Term 6 2 weeks) What might I do in the future?	Make - create a page for a book that has a mechanism to make a movement or a moving part in a card. (flipping face) Evaluate their design based on the class teachers set criteria.	Mechanisms <ul style="list-style-type: none"> • Children can measure card and paper to required length before cutting accurately. • Children can use tape, glue or a split pin to attach papers or card components • Children can explain how simple mechanisms (sliders, levers, wheels and axles), produce different types of movement

Red Area Yearly Overview – 2025-2026

Enquiry	General Overview	Key Skills
Term 1 (5 Weeks) What could my classroom be made of?	Design a new space for a classroom. Make -Build structures, exploring how they can be made stronger, stiffer and more stable. Evaluate - how stable the structure is for a classroom.	Structures <ul style="list-style-type: none"> • Use scissors or basic cutting tools, glue, an appropriate hole punch, glue gun under supervision to ensure it is used safely. • Children know how to create different joins: flange, slot, L brace, tabs, fold, and tie. • Explain how to join materials using paper or card, glue or masking tape, holes and loops.
Term 1 (2 weeks) Term 2 (2 weeks) How are schools the same?		
Term 2 (4 weeks) How can we help?		
Term 3 (6 weeks) How can we live a healthy life?	Children can name the five food groups from the Eatwell guide. Make - Create a vegetable soup (Y2) or fruit/vegetable kebab (Y1). Evaluate – use sensory characteristics to evaluate the quality of the dish.	Food <ul style="list-style-type: none"> • Children can explain basic food hygiene. • Children can safely use knives and vegetable peelers for chopping, cutting, slicing, peeling. . • Children can safely use a grating tools for grating, slicing thin rings and slicing into sticks. • Children can explain what is meant by a ‘healthy’ meal. •
Term 4 (6 weeks) What did Brunel do for Great Britain?	Evaluate -Children can name and describe different types of bridge. Talk about the engineer, design and reason for construction. Make - Construct a bridge that holds a given weight. Evaluate –can the bridge hold a given weight?	Structures <ul style="list-style-type: none"> • Children build structures, exploring how they can be made stronger, stiffer and more stable; using joining materials together, rolling, folding or layering. • Build on skills from previous enquiry by using scissors, glue, craft knife, saw, glue gun (with adult support) sandpaper.
Term 5 (5 weeks) What is a home?		
Term 5/6 (4 weeks) How do plants grows near me?	ART link - children to make a felt flower using running stitch.	Textiles - learn how to use a running stitch for joining two fabrics and attaching a button.
Term 6 (4 weeks) How will we get around in the future?	Evaluate - exciting products. Design - a moving vehicle. Make - a vehicle to travel through air/ water. Evaluate skills used to produce the vehicle.	Mechanisms <ul style="list-style-type: none"> • Children can produce a design based on their research. • Children can explain who the vehicle they design will be for and give a simple explanation for their choice of user. • Children can use a wooden part within the design • Children can measure, mark out and cut materials and components to make their vehicle. • Children can explain how their products work.

Blue Area Yearly Overview – 2024-2025

Enquiry	General Overview	Skill(s)
Term 1 (6 weeks) Where does the darkness come from?	<ul style="list-style-type: none"> Children design and make a shadow puppet that has at least 2 moving parts. Children know how mechanical systems such as levers and linkages create movement. Children are able to explain why they have used particular materials and how this impacts on how the different parts of the puppet work 	Mechanisms <ul style="list-style-type: none"> Children use the correct technical vocabulary to explain mechanical systems. Children measure to the nearest centimetre. Children use a loose pivot, fixed pivot. https://letsgolivescience.com/activity/how-to-make-a-moving-shadow-puppet/
Term 2 (6 weeks) How can we find out about people in the past?		
Term 2/3 (6 weeks) What is underneath our feet?		
Term 3/4 (6 weeks) What is the difference between surviving and being healthy?	To be able to use their knowledge of the Eat well Guide to discuss what could be included in a healthy recipe. Improve a commercially produced product (eg. Make their own Muffin)	Food <ul style="list-style-type: none"> Follow a recipe, which has been improved or modified Measure ingredients to the nearest gram accurately. Assemble and cook ingredients (controlling the temperature of the oven or hob, if cooking). Evaluate the product in relation to a healthy eating criteria.
Term 5 (4 weeks) How do plants survive?		
Term 6 (3 weeks) How can you feel the force?	Children to work as design team to make a game that includes a scientific element- type of force. (e.g. Mouse trap) Children should consider the availability of resources and time, and their own level of practical expertise. Children should be able to explain how parts of their product works using their scientific knowledge and understanding.	Structures <ul style="list-style-type: none"> Children can evaluate commercially produced products and use their findings to inform their own design criteria. Explain how they can modify a design to include an element of force. Draw a labelled diagram showing the key elements of the design and annotations to explain the structural elements of the design.
Term 6 (5 Weeks) Why did people travel in the past?	Use a variety of fabrics to create a pendant or tableau .	Textile <ul style="list-style-type: none"> Draw an annotated sketch to explain the key features of the design. Use a paper pattern to cut out a design in fabric. Select material to meet the design criteria. Children can use appropriate tools to complete basic sewing stitches: front stitch, running stitch and cross stitch, to join pieces of fabric and attach decorations such as buttons or applique. (Y1/2 will have made a flower in art using felt and a button)

Blue Area Yearly Overview – 2025-2026

Enquiry	General Overview	Skill(s)
Term 1 (6 Weeks) Why do we live here?		
Term 2 (4 Weeks) What is sound?	Research, design and make a shell shaped hand drum - Children can evaluate commercially produced products and use their findings to inform their own design criteria. - Children can consider the views of others to evaluate their product (shell structure)	<u>Structures</u> <ul style="list-style-type: none"> • Children can use research findings to inform the choice of materials to make a shell structure: hand drum. • Children can apply their KS1 knowledge of how to use cardboard to make a robust shell framework for the structure of the drum. • Children can select the most effective way to join a buffer material to the shell (glue, sewing, staple)
Term 2 (3 weeks) What is creativity?		•
Term 3 (6 Weeks) How can we switch off?	Children can explain how electrical systems are used to monitor and control their product. Children to design and make a poster . Use scientific knowledge to design and make a light source-torch . Apply engineering skills for making the structure of the light container- tabs, flange, cylindrical structure etc	<u>Computer Aided Design</u> . <ul style="list-style-type: none"> • To use research knowledge to create a design for the advertisement of a product. • To select materials related to printing skills; pencils, paints, prints. • To use computer-aided design to produce an advertising poster or presentation.
Term 4 (4 Weeks) Where does our water come from?		
Term 4 (5 Weeks) What should you flush down the loo?	Children to design and make a campaign poster .	<u>Computer Aided Design</u> . <ul style="list-style-type: none"> • Children describe in detail, the purpose of the product they have designed and made. This should focus on enhancing previous work from T3
Term 5 (4 Weeks) Who stood here before us?		
Term 6 (6 Weeks) What choices do people make? (6)	Designing and making a healthy, seasonal soup recipe that the school cook could make for lunch. Children carry out a survey . Children apply previously taught information about balanced meals. Children evaluate their product in relation to the research findings.	<u>Food</u> <ul style="list-style-type: none"> • Children should demonstrate accuracy when they are measuring out ingredients to the nearest gram. • Children should be able to select skills such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking to assemble a product. . • Children should be able to explain how specific aspects of the design meets ‘users’ needs.

Green Area Yearly Overview – 2024-2025

Enquiry	General Overview	Skill(s)
Term 1 (7 weeks) What does the earth look like from the Solar System?		
Term 2 (6 weeks) How can we show what we believe in?		
Term 3 (6 Weeks) How can science help the vulnerable? <i>This enquiry requires the children to draw on all elements of DT that have been previously taught. Teachers should therefore ensure that ample opportunity is given to discussing the skills and knowledge that the children have and these should then be applied to the enquiry</i>	Children research products that have been invented as part of a survival pack. Children use previous design ideas to produce their team survival pack.	Structures <ul style="list-style-type: none"> Children can describe the purpose of their product; appeal to intended users; and how particular parts of the product work. Children can use cross-sectional and exploded diagrams within the design presentation. Children can produce shell structures or robust frameworks. Children know and can apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand the terms such as triangulation. Children can apply skills for joining fabrics with a needle. Children know simple joins for a wooden structure.
Term 4 (5 weeks) Who is trading with whom?	Children research engineers that have impacted on trading within the UK and wider world. They can create a method of trading / currency to be used within the school.	Structures <ul style="list-style-type: none"> Children investigate and analyse a range of products. Children understand and explain how key events and individuals in design and technology have helped shape the world Children evaluate their ideas and products against their own criteria and consider the views of others to improve their work. Children explain their currency that they have developed and why and what they are planning on using it. <p><i>Design and evaluate only.</i></p>
Term 5 (4 weeks) How are you helping to save our planet?	Children use surveys, interviews, questionnaires and web based resources to develop, designs for functional sustainable products. Children evaluate the school environment and plan a large scale design to improve one element that was identified in the research. The product will be as a result of research findings and could be a topical issue that is current in school. Another idea could be... Design and make an animal home.eg. Make wooden bird boxes and bug hotels. This could be as a project with the younger children.	Mechanisms and Structure <ul style="list-style-type: none"> Children can explore products that we use every day and evaluate them on an environmental ranking. Children should develop a range of practical skills to create products involving the use of wood (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). Children should be able to use measuring tools to accurate mark, cut and assemble the product. Children should follow a design brief and regularly evaluate and amend the process to meet changing circumstances that may occur when using the school environment.
Term 6 (4 Weeks) Where is our twin?	Children produce a 3d textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics Children work as a whole year group to produce a tapestry (large scale fabric design) to represent their twin town. (Linked to the artist: Jenny Urquhart and Harriet Powers).	Textiles <ul style="list-style-type: none"> Children are able to transfer a pattern to fabric. Children are able to use a range of stitches to join fabric (running stitch, cross stitch), and apply decorative stitches/tapestry stitches; chain stitch or French knot. Children can investigate simple quilting techniques or applique. Children understand how fabrics can be strengthened, stiffened and reinforces where appropriate.
Term 6 (3 Weeks) What do forces actually do?	Children need to use their science knowledge as an engineering team to design a crazy contraption that demonstrates knowledge of different mechanisms (levers, pulleys, gears and electrical systems).	Mechanisms <ul style="list-style-type: none"> Children understand how gears and pulleys can be used to speed up, slow down or change the direction of a movement. Children understand and describe mechanical systems in their evaluation of products [for example, gears, pulleys, cams, levers and linkages] Children understand and describe electrical systems in their evaluation of products [for example, series circuits incorporating switches, bulbs, buzzers and motors] Children understand that mechanical and electrical systems have an input, process and output. <p><i>Evaluate mechanisms.</i></p>
What makes a good performance, great? (1 week)		

Green Area Yearly Overview – 2025-2026

Enquiry	General Overview	Skill(s)
Term 1 (7 Weeks) How do we all live together?		
Term 2 (7 Weeks) How are lives saved?		
Term 3 (5 Weeks) Where does our food really come from?	<p>Children will research locally produced food products and use these to create and improve a savoury dish. Children should be able to explain how specific aspects of their design ideas or products will meet users’ needs, wants and preferences.</p> <p>Make locally sourced dishes with a range of ingredients. (If outside provider is used the children MUST have be taught skills prior to the visit).</p>	<p><u>Food</u></p> <ul style="list-style-type: none"> • Children can research where food is grown in the UK. • Children are able to talk about seasonality and how food is processed. • Children measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Children can create and refine recipes, including ingredients, methods, cooking times and temperatures.
Term 4 (6 Weeks) Linnaeus and Darwin: What connects them?		
Term 5 (4 Weeks) Why are shadows important?		
Term 5-6 (4 Weeks) Who were the greatest engineers? The Victorians or the Ancient Britons.	<p>Children review the engineering skills they have developed throughout their time at Barrs Court. They research engineers that have impacted on modern designs. They create their own mechanism or structure to present to an audience.</p> <p>To make a fairground from the past using cardboard or wood.</p>	<p><u>Mechanisms or Structures</u></p> <ul style="list-style-type: none"> • Children can 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. • Children can formulate a step by step plan to guide making, listing tools, equipment, materials and components • Children can apply previously taught skills for designing, making and evaluating products • Children can confidently demonstrating cutting, shaping, joining and finishing skills. • Children can present their design to a critical audience.
Term 6 (4 Weeks) How big is your footprint?		

Barrs Court Primary School Design Technology Knowledge and Skills progression – Reception Yearly Overview

	Enquiry	EYFS objectives Expressive arts and design, creating with materials (Development Matters, Early Learning Goals)	Key Knowledge and vocabulary	Key skills
Term 1	Who are we?	(DM 4-5) Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM 4-5) Create collaboratively, sharing ideas, resources and skills. (ELG) Share their creations, explaining the process they have used.	<u>Mechanical structures</u> Develop an understanding and use of construction kits within continuous provision. Construction kits should enable children to build towers, walls, frameworks and other structures. Encourage children to think about what their product is for e.g. a house for my family to live in, a car for granny to drive me to swimming. A clear focus on a personal design. They need frequent opportunities to play with and explore a range of large and small construction kits that use different forms of joining e.g. magnetic, slot together, stacking etc. Talk about how our bodies need joints to move. Introduce adhesive tape and glue for the children to explore attaching paper and card to boxes or other structures . Adults model how to talk about a design and demonstrate how they could sketch their final model/ construction. <u>Vocabulary:</u> Glue, scissors, tape, construction kit names (Lego, Duplo, Mobilo etc), join, build, shape,	Begin to use the language of designing and making, e.g. join, build and shape. Learn about planning and adapting initial ideas to make them better Construct with a purpose in mind. <u>Mechanisms:</u> To name basic construction tools; glue, tape, scissors. <u>Design:</u> To talk about what they are going to make and what materials they might need. <u>Make:</u> To use scissors and hole punch safely. <u>Evaluate</u> To talk about their design ideas and what they have made.
	What is darkness?	(DM 4-5) Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM 4-5) Create collaboratively, sharing ideas, resources and skills. (ELG) Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG) Share their creations, explaining the process they have used. (ELG) Make use of props and materials when role playing characters in narratives and stories	<u>Mechanisms.</u> Investigate how puppets move and how simplified mechanisms are used to create movement. (Y3.4 enquiry link) Children to make simple drawings of their designs. Children to learn how to use split pins to create a moving part. Explore making models and holders (pots/ diva) using playdough and clay. Experiment with adding decorations to a design. Explore torches – deconstruct/ take them apart and rebuild them. Learn to name the different parts (switch/ bulb/shell/ mirror) Rotate construction kits in provision to ensure that they are investigating joining techniques and structural elements of a design. <u>Food and hygiene</u> Learn how to chop and slice vegetables for an autumn soup.	Begin to use the language of designing and making, e.g. join, build and shape. Select tools and techniques needed to shape, assemble and join materials Learn how everyday objects work by dismantling torches. Learn about planning and adapting initial ideas to make them better Construct with a purpose in mind. Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method. Learn how to use a wider range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters. tie with string
Term 2	What stories do we know?	(DM 4-5) Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM 4-5) Create collaboratively, sharing ideas, resources and skills. (ELG) Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG) Share their creations, explaining the process they have used. (ELG) Make use of props and materials when role playing characters in narratives and stories	Rotate construction kits in provision <u>Mechanical structures</u> Adults to read pop-up books to introduce children to mechanical structures in everyday life. Discuss how the different parts move, use deconstructed book to look at sliders/ rotation/ pop-ups. Introduce simple structures for making a moving part Children to investigate using construction kits to create a bridge for the story characters to use. (Pre enquiry focus for Year 1 enquiry). <u>Food and hygiene</u> Children to develop skills for cooking biscuits- gingerbread people. Focus on safety and hygiene. Start to read the scale of a dial.	Talk about how the characters move/ the moving mechanism in the book. Learn how to use cooking tools- bowl, spoon, scales, measuring jug, measuring spoons, and timer. Begin to understand some of the techniques and processes involved in food preparation. Begin to talk about likes and dislikes when tasting the food. .

Term 3	What is a celebration?	(DM 4-5) Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM 4-5) Create collaboratively, sharing ideas, resources and skills. (ELG) Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG) Share their creations, explaining the process they have used. (ELG) Make use of props and materials when role playing characters in narratives and stories	Structures. Making a class lion/ dragon for CNY celebration Develop skills for cutting and folding in different ways (concertina) to develop a spring motion. Join materials and fabric to a cardboard construction. Investigating attachment techniques: join plastic to cardboard by using a sellotape support over the top of glue. Reinforce joins by adding paper or cardboard tabs. Add wool to cardboard using glue. Make a slot to attach a tail. Staple fabric strips to a sheet. Glue wool to paper or card for the mane. Add paint and decorations to add aesthetic qualities to their work when making Eg.	Begin to use the language of designing and making, e.g. join, build and shape. Select tools and techniques needed to shape, assemble and join materials Learn how to use a range of tools Learn about planning and adapting initial ideas to make them better Construct with a purpose in mind. Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method. Learn how to use a wider range of tools, e.g. scissors, hole punch, stapler.
Term 4	What is growing?	(DM 4-5) Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM 4-5) Create collaboratively, sharing ideas, resources and skills. (ELG) Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG) Share their creations, explaining the process they have used.	Structures Constructing for a purpose and recording their own design. Make bird feeders using fat and bird feed. Use recycled materials, like a plastic bottle. Design and make a miniature scarecrow, Develop skills for joining materials (stapler or blunt needles). Draw a sketch of their scarecrow and label the parts. Develop skills for using woodwork tools (hammer and nails) to create a large scale scarecrow. Evaluate and improve their design based on what they like or don't like. Food Revisit chopping and slicing skills to make a salad.	Begin to use the language of designing and making, e.g. join, build and shape. Select tools and techniques needed to shape, assemble and join materials Learn how to use a glue gun, stapler, saw and needles. Construct with a purpose in mind. Begin to talk about changes made during the making process, e.g. sewing the fabric is a nicer technique than stapling.
Term 5	How do we care for our pets?	(DM 4-5) Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM 4-5) Create collaboratively, sharing ideas, resources and skills. (ELG) Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG) Share their creations, explaining the process they have used. (ELG) Make use of props and materials when role playing characters in narratives and stories	Structures Draw their own design for a pet container. Select a method to join materials; staple, sticky tape, sew, glue. Strengthen a join by adding support mechanisms- triangle corners or cross-hatch joining. . Use construction kits to make an enclosure for a pet/pet carrier Evaluate how the carrier withstands a weight.	Children to talk about designing and making, e.g. join, build and shape. Select tools and techniques needed to shape, assemble and join materials Learn how to use a glue gun. Learn how everyday work objects by dismantling a pet carrier. Learn about planning and adapting initial ideas to make them better. Construct with a purpose in mind. Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method. Learn how to use a wider range of tools, e.g. scissors, hole punch, stapler, woodworking tools.
Term 6	Who helps us?	(DM 4-5) Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM 4-5) Create collaboratively, sharing ideas, resources and skills. (ELG) Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG) Share their creations, explaining the process they have used. (ELG) Make use of props and materials when role playing characters in narratives and stories	Mechanisms/ Textiles Design, make and evaluate a vehicle. Explore toy vehicles. Use construction kits to make rotating and fixed axles. Use recycled materials to design and make emergency vehicles with junk (cereal box, doweling/ straw and cardboard wheels) Textiles: Develop skills for joining fabric to a structure or joining two pieces of material using blunt needles.	Begin to use the language of designing and making, e.g. join, build and shape. Select tools and techniques needed to shape, assemble and join materials Learn how to use a range of tools Learn how everyday objects work by dismantling things. Learn about planning and adapting initial ideas to make them better Construct with a purpose in mind. Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method. Learn how to use a wider range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters.

Barrs Court Primary School Design Technology Knowledge and Skills progression – Red Area Yearly Overview – 2024-2025

	Enquiry	National Curriculum Objectives	Key Knowledge and Vocabulary	Design Technology skills
Term 1	<p>Term 1 (5 Weeks)</p> <p>What is my hat made of?</p> <p>Previous learning: EYFS EAD- creating with materials.</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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 <p>Make</p> <ul style="list-style-type: none"> ♣ select from and use a range of tools and equipment to perform practical tasks: cutting, shaping, joining and finishing ♣ select from and use a wide range of textiles, according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ Build structures, exploring how they can be improved. 	<p><u>Designer/ Engineer: local milliner</u> Alison Wright Millinery. https://www.alisonwrightmillinery.co.uk/ Bespoke quality hats and fascinators made to your request from Bristol based studio.</p> <p><u>Vocabulary:</u> Design- research, dismantle, purposeful, functional, appealing. Make: fasten, join, fold, stick , staple, layer, strengthen, stiffen, stable, back-stitch, cross-stitch, running stitch, Evaluate: modify and improve.</p> <p><u>Knowledge</u></p> <ul style="list-style-type: none"> • Linked to science teaching: look at different types of materials and discuss their properties and purpose. • Look at different styles of hat, then investigate the properties in relation to suitability for a hat. • Research types of hat and purpose of a variety of hats; this should include the work of a Milner. <p>Year 1 knowledge</p> <ul style="list-style-type: none"> • Children can generate ideas by drawing in their own experiences of wearing a hat or observing other people wearing a hat and with help generate a design criteria (e.g. the hat should be the right size, strong and comfy to wear). • Children know now how to join materials using sticky tape, glue, push pins, staples and paper clips. • Children can use a template to make mock-ups for a hat design. • Children can select from a range of materials and components according to their characteristics, and give scientific reasons for their choices • Children can use scissors to cut out a template and add components to the hat and use finishing techniques (e.g adding sequins to the hat). <p>Year 2 Knowledge</p> <ul style="list-style-type: none"> • .Children can previous experiences as basis for generating their own design. • Children learn how to join materials using needles and thread. • Children can create templates to represent the shape and size of their products to assist them with measuring and marking the final product. • Children can independently select materials and components according to the characteristics. They can explain functional properties (i.e. strong or waterproof) or aesthetic qualities (e.g. shiny or patterned). • Children can measure, mark out, cut and shape the materials. • Children use finishing techniques (e.g adding a coloured band to the hat). • Children can create the final design using the chosen material and joining technique. They can explain how their product meets the design criteria (I'm going to use a running stitch to join my hat together because it is stronger than glue or lacing). (This is a vital part of this investigation). 	<p>Year 1. Use previous skills from EYFS- fine motor.</p> <ul style="list-style-type: none"> • Design a hat for themselves. • Developing techniques for joining paper or card. • Use templates in paper and card to create mock-ups. • Use scissors, glue, paper/ card, sellotape, staples and clips. • Build a hat structure. • Use simple finishing techniques. <p>Year 2.</p> <ul style="list-style-type: none"> • Design a hat for another child. • Use templates in paper and card to create mock-ups. • Developing techniques for joining paper, card and fabric. • Make a paper template and use it to mark out a piece of fabric. • Use scissors, glue, paper/card, sellotape, pins, staples, clips, needles and thread. • Children can use a basic sewing stitches: running stitch, tack and cross stitch, as appropriate. • Build a hat structure, exploring how they can be made stronger, stiffer and more sturdy <p>It is important that the children try several different techniques before creating a final design.</p>
	<p>Term 1 (2 weeks)</p> <p>How does Barrs Court change Autumn</p>		<i>ARTIST FOCUS</i>	

Term 2	Term 2 (4 Weeks) Who helps who?		NO ART OR DT	
	Term 2 (2 Weeks) What do artists do?		ARTIST FOCUS	
Term 3	Term 3 (1 Week) How does Barrs Court change? Winter		ARTIST FOCUS	
	Term 3 (5 Weeks) Where is Barrs Court Primary School?		NO ART OR DT	
Term 4	Term 4 (5 Weeks) What am I?		ARTIST FOCUS	
	Term 4 (1 Week) How does Barrs Court change? Spring		ARTIST FOCUS	
Term 5	Term 5 (4 Weeks) How could we play in different ways?		ARTIST FOCUS	
	Term 5 (1) Term 6 (2 weeks) What grows near me? Previous enquires Year 2: How do plants grow near me? Year 2: How will I get around in the future	Design ♣ design purposeful, functional, appealing products for themselves and other users based on design criteria ♣ generate, develop, model and communicate their ideas through talking about recipes, create a drawing, Make ♣ select from and use a range of tools and equipment to perform practical tasks [for cutting, slicing] ♣ select from and use a wide range of ingredients, according to their characteristics use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from. ♣ evaluate their ideas and products against design criteria	https://www.foodafactoflife.org.uk/ Vocabulary: Healthy, varied, prepare, location, origin, taste, texture, aroma. <u>Year 1.</u> <ul style="list-style-type: none"> I know the sensory characteristics of ingredients are appearance, taste (flavour), texture (mouth feel), and smell (aroma) I can name the five food groups from the Eatwell guide: Fruit and vegetables; bread, rice, potatoes, pasta and other starchy food; milk and dairy food; meat, fish, eggs, beans and other non-dairy sources of protein; foods and drinks high in fat and/or sugar. I know food is made from plants and meat. I know that food needs to be prepared and cooked to make it safe to eat. <u>Year 2</u> <ul style="list-style-type: none"> I can describe the sensory characteristics of ingredients are appearance, taste (flavour), texture (mouth feel), and smell (aroma) I can name the five food groups from the Eatwell guide and discuss what foods might be in each group. I can explain why food needs to be cleaned and cooked for a period of time. 	<i>Cookery: I understand where food comes from,</i> <i>Make: I can select from and use a range of tools and equipment to perform tasks.</i> I can use a peeler to prepare carrots or vegetables. I can use a knife safely to cut a vegetable or fruit.

	<p>Term 6 (3 weeks)</p> <p>How do we move around?</p> <p>Summer</p> <p>(Enquires connected to this: Y2 How will we get around in the future? Y2: How are schools the same?)</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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 information and communication technology <p>Make</p> <ul style="list-style-type: none"> ♣ 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 according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ explore and use mechanisms ;levers, sliders, wheels and axles in their products 	<p><u>Science link:</u> animals including humans: how our body moves.</p> <p>Visitors: younger children, book printers, authors, illustrators, toy makers, local craft experts.</p> <p><u>Vocabulary:</u></p> <p>Design- research, dismantle, purposeful, functional, appealing.</p> <p>Make: fold, lever, pivot, hinge, slide, spinner, pop-up, model, rotate, cutting, shaping, joining, finishing.</p> <p>Evaluate: analyse improve</p> <p><u>Knowledge</u></p> <p>Outcome: Movement can be created in different ways using different mechanisms.</p> <p>Children can talk about the design process; research, create a design linked to enquiry outcome, investigate the use of materials for a purpose and discuss how a design mechanism could be incorporated into their own design.</p> <p><u>Year 1 Knowledge</u></p> <p>Draw on everyday experiences of things that can move; animals and people move their bodies (Application of science knowledge)</p> <p>Explain how they use a moving part to create an effect (a bird flying across the sky, an animal popping up or the rotation of a picture wheel).</p> <p>Know that simple mechanisms produce different types of movement; sliders move in a straight line (left/right, up/down), levers move in a curve, and wheels and axles which turn.</p> <p>Generate a design based on their own ideas and design criteria (They make the book/card for themselves).</p> <p>Use a template to record and label their design.</p> <p>Apply their knowledge to the type of mechanism they create; a push or pull movement in their book/card.</p> <p>Use pencils or paint to illustrate the book/card.</p> <p>Evaluate the product based on the Class teachers design criteria.</p> <p><u>Year2 Knowledge</u></p> <p>Talk about how animals and people use a hinge and lever to move their bodies (Application of science knowledge)</p> <p>Disassemble a moving part books to investigate a design feature. They can explain how simple mechanisms (sliders, levers, wheels and axles), produce different types of movement, they can talk about how winding mechanisms create a movement.</p> <p>Make simple drawings with inclusion of labels to identify materials, components and parts of their product.</p> <p>Produce a book for a reception or year 1 child and evaluate the product based on the younger child's design criteria.</p>	<ul style="list-style-type: none"> • Use card strips, paper of different thickness, scissors, glue, blue tac, split pins, coloured pens, pencils, magazines, printed images. • Developing techniques for connecting different parts and adding illustrations • Create a pop-up book to meet the enquiry outcome. <p>Evaluate designs by talking to the children that they have chosen to share their books with as part of the enquiry.</p> <p><u>Year 1 skills</u></p> <ul style="list-style-type: none"> • Use construction materials to create moving parts. • Cut out pictures to create illustrations. • Know how to fold card. • Know how to join materials to make a slider. <p><u>Year 2 skills</u></p> <ul style="list-style-type: none"> • Know how to measure the required length of paper/ card before cutting out. • Know how to join paper/card. • Know how to construct a slider to move a picture left/ right, up/down. • Know how to use wheels and axles to rotate a picture. • Know how parts that move can be made stronger, stiffer and more stable.
Term 6	<p>Term 6 (2 Weeks)</p> <p>What might I do in the future?</p> <p>Previous enquires: Year 2: How will we get around in the future? Year 2: What could my classroom be made of?</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and information and communication technology <p>Make</p> <ul style="list-style-type: none"> ♣ 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 according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria 	<p>Vocabulary: cutting, shaping, joining, finishing, representing.</p> <p><u>Knowledge</u></p> <ul style="list-style-type: none"> • Explore 'flip books' and talk about what they can see in the design. • Talk about different types of fixing from previous enquiry. • Use their knowledge to select a joining technique. • Use a design template to construct their 'flip book'. 	<p><u>Year 1 skills</u></p> <ul style="list-style-type: none"> • I can use scissors to cut out a picture. • I can use tape, glue or a split pin to attach papers or card components. • I can use staples to join paper/card to make a 'flipping face' book. <p><u>Year 2 skills</u></p> <ul style="list-style-type: none"> • I can use a split pin to attach papers or card components or a hole punch and tag to join paper/card to make a 'flipping face' book.

Barrs Court Primary School Design Technology Knowledge and Skills progression – Red Area Yearly Overview – 2025-2026

	Enquiry	National Curriculum Objectives	Key Knowledge and vocabulary	Design Technology skills
Term 1	<p>Term 1 (5 Weeks)</p> <p>What could my classroom be made of?</p> <p>Subject Link- Lead state of being is science so properties and use of materials will be incorporated into the Engineer planning.</p>	<p>Engineering focus- DT</p> <p>Design</p> <ul style="list-style-type: none"> ♣ 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 and mock-ups. <p>Make</p> <ul style="list-style-type: none"> ♣ 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. <p>Evaluate</p> <ul style="list-style-type: none"> ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ build structures, exploring how they can be made stronger, stiffer and more stable 	<p>Focus engineer/ designer: Ole Kirk Christiansen. Lego designer 1949 Denmark. He chose materials that were suitable for building plastic models.</p> <p>Visitors: Architect and builder.</p> <p>Online resource: Architecture activities (RIBA architecture.com)</p> <p>https://www.architecture.com/education-cpd-and-careers/learning/riba-national-schools-programme/learning-resources/learning-at-home</p> <p><u>Vocabulary:</u></p> <p>Design- research, dismantle, purposeful, functional, appealing, architecture/architect</p> <p>Make: net, construction, material, scoring, mark, Strengthen, stiffen, reinforced, building/builder</p> <p>Evaluate: analyse improve</p> <p><u>Knowledge</u></p> <p><u>Year 1</u> children will be using their knowledge of EYFS skills: cutting with scissors and fixing with tape and glue. They will need to build on these skills during this enquiry.</p> <p>Know that designers have to plan their design, choose materials for a purpose, construct their design and evaluate the final product.</p> <p>Talk about how to disassemble a cardboard or construction kit building structure, and know how this can form a template for their own design.</p> <p>Explain how to join materials using paper or card, glue or masking tape, holes and loops.</p> <p>Draw their own basic design based on a teacher’s model or using a previous design. Say why they have chosen a particular material in their design eg. Card or paper for stability and strength, consumable materials or combination of construction and consumable. Paint or collage materials for aesthetic appearance.</p> <p>Use flexible materials (paper/ card/ sheet plastic) to explore and make a free-standing structure, and apply suitable materials to the outside.</p> <p>Make comparisons between designs based on the stability of the construction and overall appearance.</p> <p><u>Year 2</u></p> <p>Investigate the use of materials for a purpose, discuss how a design structure could be incorporated into their own design.</p> <p>Know how to disassemble a structure (construction or produced) to inform their design idea. These should include walls, buttresses, towers and frameworks.</p> <p>Know how to create different joins: flange, slot, L brace, tabs, fold, and tie.</p> <p>Discuss different designs and give reasons for their choice of materials.</p> <p>Select the joins to use in their final design to demonstrate their awareness of strength, stiffness and stability.</p> <p>Evaluate the design based on the use of materials for a purpose and the stability of the product and make suggestions for future designs based on the evaluation of the product.</p>	<p>Year 1</p> <p>Design</p> <ul style="list-style-type: none"> • Design a new space for a classroom. • Communicate their ideas through talking as a class, drawing templates. • Use construction materials to create mock-ups. • <p>Make</p> <ul style="list-style-type: none"> • Use scissors and glue safely. • Build structures, exploring how they can be made stronger, stiffer and more stable. • Create model to meet enquiry outcome. • Evaluate designs. <p>Year 2</p> <p>Design</p> <ul style="list-style-type: none"> • Design functional products for a classroom. • <p>Make</p> <ul style="list-style-type: none"> • • Use scissors or cutting tools, glue, us an appropriate hole punch, glue gun under supervision to ensure it is used safely.
	Term 1 (2 weeks) Term2 (2 weeks)	<p>How are schools the same?</p>		ARTIST FOCUS
Term 2	<p>Term 2 (4 Weeks)</p> <p>How can we help?</p>		Artist focus	

Term 3 (6 Weeks)
How do we live a healthy life?

Science link- the basic human needs. What do we mean by healthy living?

Previous knowledge: EYFS: name common fruit and vegetables or herbs.

Y1/2 suggest where food comes from and how it is grown. **Focus engineer/ designer:** look at national initiatives for healthy eating.

Design

- ♣ design purposeful, functional, appealing products for themselves and other users based on design criteria
- ♣ generate, develop, model and communicate their ideas through talking about recipes, create a drawing,
- Make ♣ select from and use a range of tools and equipment to perform practical tasks [for cutting, slicing]
- ♣ select from and use a wide range of ingredients, according to their characteristics use the basic principles of a healthy and varied diet to prepare dishes
- ♣ understand where food comes from.
- ♣ evaluate their ideas and products against design criteria

Lushome are designers for encouraging children to eat healthy food.

<https://www.lushome.com/creative-food-decoration-design-ideas-make-kids-eat-healthy-food/136999>

Vocabulary: Healthy, varied, prepare, location, origin, taste, nutrition, food, source, wild/farm, balanced.

Knowledge <https://www.foodfactoflife.org.uk/>

Year 1

- Name the five food groups from the Eatwell guide: Fruit and vegetables; bread, rice, potatoes, pasta and other starchy food; milk and dairy food; meat, fish, eggs, beans and other non-dairy sources of protein; foods and drinks high in fat and/or sugar.
- Know that everyone should eat at least five portions of fruit and vegetables every day. A portion is what fits into the palm of your hand.
- Know the sensory characteristics of ingredients; taste (flavour), texture (mouth feel), and smell (aroma).
- Know that the food they eat is grown, harvested and prepared; in most cases cooked.
- Select the ingredients they wish to use based on a design criteria.
- Evaluate the design based on their own likes and dislikes.

Year 2

- Sort foods into the five groups from the Eatwell guide.
- Identify the largest and smallest food groups and discuss what this means for the products children design and make.
- Know that everyone should eat at least five portions of fruit and vegetables every day, and that variety of different fruit and vegetables are important (fresh, frozen, dries, canned, juice).
- Know that food ingredients can be combined according to their sensory characteristics.
- Explain the difference between wild and farmed food.
- Children select the ingredients they wish to use based on a design criteria.
- Children can evaluate their design based on the sensory qualities of the product.

Year 1

- Children can **safely wash food**.
- Children can use scissors to **snip** herbs and spring onions.
- Children can use skills and techniques to **cut and grate** fruit or vegetables. (Ingredients for chopping are cut in half lengthways to provide a flat base and held still with a fork so that children can able to cut safely).

Year 2

- Children can safely **use knives and vegetable peelers** for **chopping, cutting, slicing, peeling**. (Ingredients for slicing are cut in half lengthways to provide a flat base and held still with a fork so that children can able to cut safely).
- Children can safely use a grating tools for **grating, slicing** thin rings and slicing into sticks.

<p>Term 4 (6 weeks)</p> <p>What did Brunel do for Great Britain?</p> <p>Previous knowledge: EYFS: names of everyday classroom materials (paper, card, plastic, glass, metal), cutting equipment (scissors, knife), and fixings (tape, stapler, glue). Link to science teaching on the properties and use of materials- strength.</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ design purposeful, functional products for themselves and other users based on design criteria ♣ Generate, develop, model and communicate their ideas through talking, drawing, templates and mock-ups. <p>Make</p> <ul style="list-style-type: none"> ♣ 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, according to their characteristics and strength. <p>Evaluate</p> <ul style="list-style-type: none"> ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ 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 	<p>Focus engineer/ designer: Isambard Kingdom Brunel.</p> <p>Leonardo da Vinci is perhaps most famous for the <i>Mona Lisa</i>, but as well as being an incredible artist he was also a scientist, inventor and mathematician. He is well known for his self-supporting bridge. One design to span across the Golden Horn in Istanbul wasn't built at the time, but the same design was used to build a footbridge in Norway! How incredible that a bridge design from 1502 was used to build a bridge in 2001.</p> <p><u>Vocabulary:</u> engineer, engineering</p> <p>Design- component structure, bridge, suspension, beam, arch, cantilever.</p> <p>Make: rigid material, components, construction, control, strengthen, beam, truss</p> <p>Evaluate: analyse improve/improvement, evaluation</p> <p><u>Knowledge:</u> Children can apply previous knowledge to explain their design choices.</p> <p><u>Year 1</u></p> <ul style="list-style-type: none"> • Name and describe; a road bridge, footbridge and Railway Bridge. • Evaluate existing products (bridge designs), by answering questions; which do you like best? Why? What materials are they made of and why? How do they stand up by themselves? How have the parts been joined together? • Know how a beam bridge (girder) is constructed. • Draw a design based on their constructed bridge. • Assemble, join and combine materials; this can include construction kits for mock-ups. • Use non-standard or standard measures to measure and cut materials. (Card or with assistance wooden rods) • Evaluate their own products by answering questions: How can you use a construction kit? How did you make your structure stand up on its own? How did you join the parts together? How can you make it stable? <p><u>Year 2</u></p> <p>Children can name different types of bridge;</p> <ul style="list-style-type: none"> • Arch Bridge: Beam Bridge. .Cantilever bridge, .Suspension Bridge, Truss Bridge and Rope bridge • Evaluate existing products (bridge designs), by answering questions; what are the structures called? What materials have been chosen and why? How do they stand up by themselves? How have they been made strong enough of stiff enough for their purpose? What shapes can you see in them that make them strong? How have the structures been made stable? How have the parts been joined together? • Use their research to draw a design and annotate the different components of the bridge. • Use standard measures to measure and cut materials to fit a structure; this should include cutting strips of wood/ doweling. • Say what to do next in assembling their products. (Decide who they will work with, Choose where to work, Say what material or component they need, Decide which tool or piece of equipment is needed for a particular task, identify the technique; saw or glue, and decide which finishing media to use). • Evaluate their own products by answering questions: How did you make your structure stand up on its own? How did you join the parts together? How can you make it stable? How will you make it strong enough for purpose? What materials will you use and why? 	<p>Year 1</p> <p>Design</p> <ul style="list-style-type: none"> • Design a bridge for themselves that will hold a given weight. • Communicate their ideas through talking. • Use construction materials to create mock-ups. • Communicate their ideas through talking as a class, drawing templates. • Draw a design after constructing a beam bridge. <p>Make</p> <ul style="list-style-type: none"> • Use scissors and glue safely. • Build structures, exploring how they can be made stronger, stiffer and more stable. • Create model to meet enquiry outcome. • Evaluate designs based on their individual likes and dislikes. <p>Year 2</p> <p>Design</p> <ul style="list-style-type: none"> • Children can investigate different designs and then use this to inform their design. • Design a bridge for another group of children to apply a given weight. • Communicate their ideas through talking as a class, drawing templates. • Use construction materials and recycled materials to create mock-ups. • <p>Make</p> <ul style="list-style-type: none"> • Use scissors, craft knife, saw, glue, glue gun (with adult support) sandpaper. • Children can make different joins independently before selecting the joins to use in their final design. (Include annotations linked to the teachers modelling) • Children can develop techniques by for example joining rope and creating knots. • Children build structures, exploring how they can be made stronger, stiffer and more stable. Use Joining together – Using paper or card, you could use strong glue, stapling, paper clips or strong tape to join pieces together. <p>Rolling - Rolling paper or card into tubes can produce a strong structure. You can fix a number of tubes together to create a strong base.</p> <p>Folding - Concertinaing paper and card then adding a layer of card above and below it.</p> <p>Layering - Corrugated card can be layered to create an extra strong base.(You could add a length of wood to each edge of the card, strengthening the corners with cardboard triangles. You can then add another piece of corrugated card on top of this or repeat this process several times to create an extra strong base).</p> <ul style="list-style-type: none"> • Create model to meet enquiry outcome. • Evaluate designs based on enquiry outcome. • Suggest modification for future designs.
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Term 5	(5 weeks) What is a home?		ARTIST FOCUS	
Term 5/6	(4 Weeks) What grows near me?		<p>Artist focus</p> <p>DT designer link: Andy Bending is a garden designer that has designed a school garden and lives within the Bristol area. https://www.andybendinggardendesign.co.uk/about-andy-bending-garden-design-pl</p>	
Term 6	<p>Term 6 (4 Weeks) How will we get around in the future?</p> <p>Previous enquires: Year 1- where is my school? How can we play in different ways? Year 2- What is my hat made of? What did Brunel do for GB?</p> <p>Children will need to have developed an understanding of how to create moving structures. This will be a revisit to Y2 What did Brunel do for GB?</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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, and communication technology <p>Make</p> <ul style="list-style-type: none"> ♣ select from and use a range of tools and equipment to perform practical tasks that involve joining and finishing ♣ select from and use a wide range of materials and components, including construction materials, according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> ♣ explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ build structures, exploring how they can be made stronger, stiffer and more stable ♣ explore and use mechanisms wheels and axles in their products. 	<p>Designer/ Engineer: Historical engineer: Wright brothers. Female car designer http://www.harleyyearl.com/first-women-car-designers Modern English Yacht designer: https://spirit-yachts.com/spirit-yachts/ Aerospace in Bristol</p> <p>Vocabulary: Design- research, dismantle, purposeful, functional Make: propel, rotate, Evaluate: modify and improve</p> <p>Knowledge Year 1</p> <ul style="list-style-type: none"> • Know that engineers use existing products and current ideas to inform future designs • Say who the vehicle they design will be for. • Follow a design template based on their own experiences. • Know how to use paper/card to build a plane. • Evaluate a design based on functional product or aesthetic quality. <p>Year 2</p> <ul style="list-style-type: none"> • Explain who the vehicle will be for and give a simple explanation for their choice of user. • Explain how their products work using their knowledge and understanding in science. • Produce a design based on their research. • Know how to use construction kits, card or recycled materials to build a vehicle to move through water or air • Know how to construct a paddle wheel or jet propelled boat. • Children can evaluate a design based on functional product and aesthetic quality. <p>Possible trip: The steam museum in Swindon to look at steam trains or a steam boat in Bristol harbour. Visitors: modern day designers- electric scooters/ electric cars. Engineers from Aerospace</p>	<p>Year 1</p> <ul style="list-style-type: none"> • Children can use templates in paper and card to create mock-ups. • Children can measure, mark out and cut materials and components to make their vehicle. (Measure the length of dowel with non-standard measures and mark before it is cut.) • Children can combine wooden wheels and axles in a toy vehicle. • Children can use scissors, glue, recycled materials, sellotape, straws, elastic bands, foam pieces, balloon to construct an aeroplane or boat structure <p>Year 2</p> <ul style="list-style-type: none"> • Children can combine wooden wheels and axles. • Children can measure, mark out, cut and shape a range of materials and components to make their vehicle. • (Use a junior hacksaw to cut dowel) • Children can use scissors, glue, recycled materials, sellotape, straws, elastic bands, foam pieces, balloon to construct an aeroplane or boat structure • Children can improve a design based on research and mock-ups. • Children can use finishing techniques (paint or digital images). <p>(This unit could involve a bottle of fizzy drink and bicarbonate of soda making an aeroplane move through the air/ along a long piece of cord).</p>

Barrs Court Primary School Design Technology Knowledge and Skills progression – Blue Area Yearly Overview – 2024-2025

	Enquiry	National Curriculum Objectives	Key Knowledge and vocabulary	Design Technology skills
Term 1	<p>Term 1 (6 weeks)</p> <p>Where does the darkness come from?</p> <p><i>Investigate techniques for constructing levers and hinges. Create shadow puppets to use to tell a story. <u>Shadow puppets</u></i></p>	<p>Design</p> <ul style="list-style-type: none"> 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 <p>Make</p> <ul style="list-style-type: none"> 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 textiles, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<p>Designer/ Engineer: Thomas Edison Pelham puppets- Historical link to Marlborough.</p> <p>Vocabulary:</p> <p>Design- Design brief, Annotated diagram, design process, storyboard, Make: lever, linkages, hinge, cutting, joining, linear (in a straight line), reciprocating (backwards and forwards in t straight line- slider) Evaluate: analyse, improve.</p> <p>https://letsgolive.com/activity/how-to-make-a-moving-shadow-puppet/</p> <p>Year 3 Knowledge to make a Shadow Puppet</p> <ul style="list-style-type: none"> Look at different types of shadow puppet to develop a design criteria and inform a design for a functional product. Understand the purpose of the product they are designing and making. Use KS1 knowledge to explain simple joining techniques, mechanisms and strengthen techniques. (Refer to joining <i>PowerPoint in engineering folder</i>) <p>(KS1 skills: Moving picture: Children know how to join materials using different resources such as sticky tape, glue, and push pins, staples, paper clips, needles and thread.</p> <ul style="list-style-type: none"> Explain how simple mechanisms (sliders, levers, wheels and axles), produce different types of movement, and talk about how winding mechanisms create a movement. Explain how the different parts of the puppet work (When you push or pull the slider it causes the lever to move and this makes the puppets arms/ legs move) <p>Year 4 Knowledge to make a Shadow Puppet</p> <ul style="list-style-type: none"> Use their previous knowledge to explain the purpose of the shadow puppet they will design and make. This should be reflected in the design criteria they generate at the beginning of the project. Use KS1 and KS2 knowledge to explain simple techniques. Know how mechanical systems such as levers and linkages create movement. Explain why they have used particular materials and how this impacts on how the different parts of the puppet work. 	<p>Year 3</p> <ul style="list-style-type: none"> Use the correct technical vocabulary to describe the movement of mechanical systems. Demonstrate some accuracy when they are measuring, marking out, cutting, shaping, assembling and joining their puppet. Cut materials accurately and safely by selecting appropriate tools (scissors) Use cardboard and split pin linkages to create ‘joints’ of a body or levers to make an object move without directly touching. Evaluate the product based on the design criteria. <p>Year 4</p> <ul style="list-style-type: none"> Demonstrate accuracy when they are measuring (to the nearest cm), marking out, cutting, shaping, assembling and joining their puppet. Cut materials accurately and safely by selecting appropriate tools (scissors, craft knife) Use their knowledge of linkages and levers to produce a shadow puppet that has at least 2 moving parts. Evaluate their product based on the accuracy of production and product criteria.
Term 2	<p>Term 2 (6 Weeks)</p> <p>How can we find out about people in the past?</p>	<ul style="list-style-type: none"> understand how key events and individuals in design and technology have helped shape the world 	<p>KEEPIE UPPIE</p> <p>As a historical link revisit the designers that were part of the enquiries in KS1 Ole Kirk Christiansen. Lego designer 1949 Denmark Isambard Kingdom Brunel. Wright brothers.</p>	
Term 3	<p>Term 2/3 (6 Weeks)</p> <p>What is underneath our feet?</p>		<p>NOT ART OR DT</p>	

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Term 4	<p>Term 3/4 (6 Weeks)</p> <p>What is the difference between surviving and being health?</p> <p><i>Explore the nutritional value of existing snacks and consider why they are popular. Investigate ways to make alternatives that have reduced sugar and/or fat to make them healthier and evaluate these cook healthy meal</i></p>	<ul style="list-style-type: none"> ♣ 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. 	<p><u>Designer/ Engineer:</u> Contact a local dietician.</p> <p><u>Vocabulary:</u></p> <p>Design- Design brief, create Make: Healthy, nutrition, diet, exercise, varied, prepare, location, origin, Raw, cooked Preparation, processed balanced, texture, smell, taste, sweet, sour, hot, spicy, appearance, processed, seasonal, harvested, diet. Evaluate:, modify, improve</p> <p><u>Knowledge</u></p> <p><u>Year 3</u> Know there are 5 food groups in the Eat well guide. Know that foods are sometimes made from two or more of these food groups. Name and describe a variety of fruit and vegetables. Talk about food that they eat. Use their science knowledge to answer the question; What do we need to grow and be healthy? Make a snack based on their findings.</p> <p><u>Year 4</u> Name the 5 food groups in the Eat well guide. Explain how foods are sometimes made from two or more of the Eat well guide food groups. Talk about food that they eat and other community users. Explain the difference between basic nutrition and being healthy.</p>	<p><u>Year 3</u> Use their knowledge of the Eatwell Guide to discuss what could be included in a healthy recipe. Investigate combination of ingredients for an audience to try Evaluate the success of the product</p> <p><u>Year 4</u> Explain choices in a recipe using their knowledge of the Eatwell guide. Evaluate the success of the product and explain why they think it was a success. Evaluate the success of the product and make modification (e.g. How could they make them even healthier? Replacing fats or less sugar?)</p> <p>If the children cook food they should cover the following: - Prepare ingredients hygienically using appropriate utensils. - Measure ingredients to the nearest gram accurately. - Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). - Follow a recipe, which might have been improved or modified.</p>
Term 5	<p>(4 weeks)</p> <p>How do plants survive?</p>		ARTISTIC FOCUS	

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Term 6	Term 6 (3 Weeks)		
	<p>How can you feel the force?</p> <p>Design, make and evaluate a game utilising magnets.</p> <p><u>Previous enquiries</u> Year 1- What is my hat made of? What could my classroom be made of?</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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 <p>Make</p> <ul style="list-style-type: none"> ♣ 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, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> ♣ 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<p>Designer/ Engineer: E.J. Lawrence was the one responsible for the creation of the table football. He patented it in 1913. Alejandro Finisterre patented his invention of table football, fútbolín, in Madrid during the Spanish Civil War in 1937. His version of the game is the one used in modern-day table football.</p> <p>Vocabulary: Design- research, purpose, product Make: aesthetic quality, appealing for an audience, purpose Evaluate: design brief. Views and opinions.</p> <p>Knowledge to make A game using magnets,</p> <p><u>Year 3</u> Use their research and knowledge to identify the intended users (this should be moving away from the KS1 focus of themselves). Use their knowledge of material properties to describe the purpose of the product they are designing and making. This should use KS2 vocabulary. Explain the design features of the product that will appeal to the intended user. This should take into consideration the use of recycled materials and availability of resources.</p> <p><u>Year 4 make A game using magnets,</u> Use previous knowledge to talk about designers from KS1 and KS2 enquiries. Explain the purpose of the product and start to consider this in the design process based on their scientific understanding. Identify the intended users' needs and preferences. Consider the availability of resources and time, and their own level of practical expertise. Explain how parts of their product works using their scientific knowledge and understanding.</p>

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<p>Term 6 (5 Weeks)</p> <p>Why did people travel in the past?</p> <p><i>Design and make a pennant using scissors to cut accurately. Join materials using a running stitch and a cross-stitch. Textiles</i></p>	<p>Design</p> <ul style="list-style-type: none"> 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. <p>Make</p> <ul style="list-style-type: none"> 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 textiles according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> investigate and analyse a range of existing products <p>individuals in design and technology have helped shape the world</p> <p>Technical knowledge</p> <ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<p>Designer/ Engineer: Samuel Parkinson</p> <p>Stephanie Kwolek was an American-Polish chemist who worked with synthetic (humanly-constructed) fibres. She invented Kevlar, an incredibly light but very strong material.</p> <p>Vocabulary:</p> <p>Design- Design brief, design process, functional, specification, aesthetic</p> <p>Make: running stitch, tacking stitch, weaving, structure, fabric, fastening, compartment, finishing technique, strengthen, weakness, stiffening, template, stitch, and seam.</p> <p>Evaluate: analyse.</p> <p>Knowledge to make a pendant.</p> <p>This enquiry maybe the first opportunity to use textiles within year 3/4 so should build on the work completed in KS1- artist making a flower with a button attached.</p> <p>Year 3</p> <p>Gather information about the wants and needs of the explorer. Explain the design features of their product that will appeal to the intended users. Explain their choice of material according to functional properties. Know how to strengthen, stiffen and reinforce existing fabrics using fabric shapes and folding techniques. (If you stitch in reverse and then turn the join is more secure but not flat). Evaluate the design based on the design criteria.</p> <p>Year 4</p> <p>Use their research to describe in some detail, the purpose of the pendant and class tableau. Explain how specific aspects of the design will meet the users' needs, wants and preferences. Explain their choice of material according to functional properties and aesthetic qualities. Understand how to securely join two pieces of fabric together by selecting the most appropriate stitch (Blanket stitch secures the edge and prevents fraying, backstitch makes a more secure join than running stitch). Evaluate the design linked to historical criteria and choice of joining technique.</p> <p>(In order to ensure progression in skills. PLEASE give photo evidence/ example of work to the DT lead, so that it can be used as an example in Y5/6 for their textile enquiry).</p>	<p>Year 3</p> <p>Children should use annotated sketches (labels) to explain the features of the pendant. Children should be able to follow instructions to join a pattern, made from tracing paper onto fabric. Children will be able to select fabrics based on their experience of materials in KS1. Children should demonstrate some accuracy when they are measuring, marking out, cutting, shaping, assembling and joining - Children should cut materials accurately and safely by selecting appropriate tools (scissors) Children can use a needle and thread to complete basic sewing stitches: tac and running stitch as appropriate to make a pennant</p> <p>Year 4</p> <p>Children should use annotated sketches (notes) to explain the features of the pendant. Children should be able to join a pattern, made from tracing paper onto fabric. Children will be able to select 'suitable' materials to match the skills and techniques they will be using (I chose some cotton material as it is strong and hard wearing) Children should demonstrate accuracy when they are measuring (to the nearest cm), marking out, cutting, shaping, assembling and joining the material. - Children should cut materials accurately and safely by selecting appropriate tools (textile tools) Children can use appropriate tools to complete basic sewing stitches: front stitch, running stitch and cross stitch, as appropriate to make a pennant.</p>
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Barrs Court Primary School Design Technology Knowledge and Skills progression – Blue Area Yearly Overview – 2025-2026

	Enquiry	National Curriculum Objectives	Key Knowledge and vocabulary	Design Technology skills
Term 1	Term 1 (6 Weeks) Why do we live here?		ARTIST FOCUS	
Term 2	Term 2 (4 Weeks) What is sound? Hand drum. Enquiries connected to this Year 2: What could my classroom be made of? (SCI/ENG) Year 3: How can you feel the force? (SCI) Year 4: What should you flush down the loo? (SCI) Year 5: How can science help the homeless? (SCI) Year 5: How are you going to save the planet?(SCI/ENG) Year 6: How big is your footprint?	<p>Design</p> <ul style="list-style-type: none"> 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 <p>Make</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks for joining and finishing], accurately select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<p><u>Designer/ Engineer:</u> Bristol drum co make drums.</p> <p><u>Vocabulary:</u> Design- purposeful, functional, decision Make: combine, stable, score, shell structure, marking out, tabs, adhesive, assemble, corrugated. Evaluate: investigate, evaluate criteria, improve</p> <p><u>Knowledge to make a hand drum.</u> Year 3 Talk about inventors, designers and engineers that have developed ground-breaking products- look at drums from around the world and modern technology that considers the type of material that produces the ‘best’ sound. Evaluate commercially produced products- types of drums in school and from Drummers around the area (Possible visit from a drummer- Mr Jones). Use learning from science to help design and make a shell based drum. Analyse the effectiveness of drum by carrying out a scientific investigation- how does the sound travel, how effective is the chosen material for creating a vibration? (Science opportunity to use a science app sound data logger!)</p> <p>Year 4 Evaluate commercially produced drums and use their findings to inform their own design criteria. Consider the views of others to evaluate their product.</p> <p><u>Resources:</u> https://www.youtube.com/watch?app=desktop&v=U3M-6b9lDiY There are lots of examples of how to make a net framework with mesh and papier-mâché shell online. The skin can then be created with different materials to create the sound expectations of a scientist!</p>	<p>Children can evaluate a product based on consumer needs.</p> <p>Skills for making drum.</p> <p><u>Year 3</u> -Select cutting tools and components to join materials to make the mesh structure, papier-mâché shell and the skin of the drum. -select materials that are suitable to make each of the 3 parts on the drum. - use knowledge of a shell structure to make the product strong- if there is no mesh structure the shell will need to be reinforced with strips of card and the outer edge reinforced with a ring of card.</p> <p><u>Year 4</u> Explain the choice of tools and equipment in relation to the skills and techniques they will be using. Use research findings to inform the choice of materials to make hand drum Use understanding of the properties of materials to make the drum produce the ‘best’ quality sound.</p>
	Term 2 (3 Weeks) What is creativity? No longer Science and engineering enquiry.			

Term 3	<p>Term 3 (6 weeks)</p> <p>How can we switch off?</p> <p><i>Design and make a product for a given audience that includes an electrical circuit.</i></p>	<p>Design</p> <ul style="list-style-type: none"> use research to inform the design of a appealing product that is fit for purpose, aimed at particular individuals or groups generate, develop and communicate their ideas through discussion and computer-aided design <p>Make</p> <ul style="list-style-type: none"> select from and use equipment to perform practical tasks select from and use a range of materials based on aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <p>Technical knowledge</p> <ul style="list-style-type: none"> 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 	<p>Designer/ Engineer</p> <p>Charles Fritts is credited with creating the first practical solar cell. He coated selenium, a semi-conductive material, with a thin layer of gold to form a junction semiconductor.</p> <p>Vocabulary:</p> <p>Design- research, purpose, product</p> <p>Make: aesthetic quality, appealing for an audience, purpose, series circuit, fault, connection, toggle switch, push to make switch, push to break switch, battery, insulator, conductor, system, input device, and output device.</p> <p>Evaluate: views and opinions</p> <p>Knowledge Make a torch or wind powered gadget. Present findings as a poster.</p> <p>Science link- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <p>Science link-They can apply their electrical circuit skills to design and make a product for a given audience.</p> <p>Learners can explain how electrical systems are used to monitor and control their product.</p> <p>-Children can gather information about the needs and wants of an individual or group.</p> <p>-Children can explain the purpose of the product.</p>	<p>-to use research knowledge</p> <p>-to select materials related to printing skills; pencils, paints, prints.</p> <p>-to use computer-aided design.</p>
Term 4	<p>(4 Weeks)</p> <p>Where does our water come from?</p>		ARTIST FOCUS	
Term 4	<p>Term 4 (5 Weeks)</p> <p>What should you flush down the loo?</p> <p><i>Evaluate existing food packaging, design, make and evaluate an alternative package.</i></p>	<p>Design</p> <ul style="list-style-type: none"> use research to inform the design of a appealing product that is fit for purpose, aimed at particular individuals or groups generate, develop and communicate their ideas through discussion and computer-aided design <p>Make</p> <ul style="list-style-type: none"> select from and use equipment to perform practical tasks select from and use a range of materials based on aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 	<p>Designer: Look at local graphic designers.</p> <p>This way up! This Way Up is an independent, award winning creative agency with a mission to improve lives by working with health and natural food and drink brands. https://www.thiswayupdesign.com/</p> <p>Vocabulary:</p> <p>Design- research, purpose, product</p> <p>Make: aesthetic quality, appealing for an audience, purpose</p> <p>Evaluate: views and opinions</p> <p>Knowledge to make an alternative food package.</p> <p>Use scientific knowledge.</p> <p>Know how to make packaging that will appeal to an audience.</p> <p>Select resources and materials to create aesthetic qualities in the final design.</p> <p>Ensure that joins are stable and secure within the packaging.</p> <p>Explain how they have included a design brief in their product.</p>	<p>-to use research knowledge</p> <p>-to select materials related to printing skills; pencils, paints, prints.</p> <p>to use computer-aided design.</p> <p>-to describe in detail, the purpose of the product they have designed and made.</p> <p>This should focus on enhancing previous work from T3.</p>
Term 5	<p>Who stood here before us? (4)</p>		ARTIST FOCUS	

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Term 6	<p>Term 6 (6 Weeks)</p> <p>What choices do people make? (Why are more people becoming vegetarian?)</p> <p><u>Prepare and cook a savoury meal using a range of cooking techniques. Evaluate how nutritious and/or environmentally friendly the meal was.</u></p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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 <p>Food and nutrition</p> <ul style="list-style-type: none"> ♣ 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. <p>Evaluate</p> <ul style="list-style-type: none"> ♣ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 	<p>Designer/ Engineer: Michael Caine is a black Michelin star chef. Use the eat them to defeat them campaign to support the design process.</p> <p>The outcomes of this enquiry need to be evaluated with reference to science.</p> <p>Vocabulary:</p> <p>Design- healthy, savoury, seasonality reared, processed. Make: Raw, cooked Preparation, processed balanced, texture, smell, taste, sweet, sour, hot, spicy, appearance, processed, seasonal, harvested, healthy, varied, diet. Evaluate: create, modify, improve, presence</p> <p>Knowledge</p> <p>Year 3</p> <ul style="list-style-type: none"> - Gather information about the needs and wants of individuals and groups. - Carry out a class based survey. - Talk about food sources and relate to animal products. https://www.foodafactoflife.org.uk/ - Explain the Eatwell guide. - Evaluate their design for a healthy/balanced meal by commenting on how healthy, environmentally friendly, and nutritious they are. - Present their findings. <p>Year 4</p> <ul style="list-style-type: none"> - Describe, in some detail, the purpose of the products they are designing and making. (Designing and making a healthy, Eg. seasonal soup recipe that the school cook could make for lunch). - Know how to carry out a survey. - Understand that a balanced meal needs to contain vegetables, whole grains, fruits and healthy protein. - Known facts about where and how a variety of ingredients are grown, reared, caught and processed (food production). - Evaluate their design for a healthy/balanced meal by commenting on how healthy, environmentally friendly, nutritious etc. they are - Present their research using art and engineering skills. 	<p>Year 3</p> <p>Children should demonstrate some accuracy when they are measuring out ingredients. Prepare ingredients hygienically using appropriate utensils. Children should be able to follow a recipe. Children should be able to use skills such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Year 4</p> <p>Children should be able to explain how specific aspects of the design meets 'users' needs. Children should demonstrate accuracy when they are measuring out ingredients to the nearest gram. Children should assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). Children should be able to select skills such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking to assemble a product. .</p>
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Barrs Court Primary School Design Technology Knowledge and Skills progression – Green Area Yearly Overview – 2024-2025

	Enquiry	National Curriculum Objectives	Key Knowledge and vocabulary	Design Technology skills
Term 1	What does the earth look like from the Solar System?		ART FOCUS	
Term 2	How can we show what we believe in?		ART FOCUS	
Term 3	<p>Term 3 (6 Weeks)</p> <p>How can science help the vulnerable?</p> <p>Previous enquires in KS1: Cycle A What could my classroom be made of? Cycle B: What is my hat made of?</p> <p>Previous enquires in LKS2 Cycle A What is sound? Cycle B Why did people travel in the past?</p> <p>This enquiry requires the children to draw on all elements of DT that have been previously taught. Teachers should therefore ensure that ample opportunity is given to discussing the skills and knowledge that the children have and these should then be applied to the enquiry. This is a STEM enquiry and should be presented to the children with a clear focus on the connections made between science and engineering.</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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 <p>Make</p> <ul style="list-style-type: none"> ♣ 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 <p>Evaluate</p> <ul style="list-style-type: none"> ♣ 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ 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 	<p>Designer/ Engineer: Belgian chemist and clever marketer Leo Baekeland pioneered the first fully synthetic plastic in 1907. Leo H. Baekeland introduced the world to "bakelite," the first completely synthetic resin, which could be moulded and used in hundreds of different ways. Roy J. Plunkett (June 26, 1910 – May 12, 1994) was an American chemist. He invented polytetrafluoroethylene (PTFE), i.e. Teflon, in 1938.</p> <p>This enquiry should include a visitor linked to the product of study. This could be a homeless person or a charity linked to the provision of resources for homeless people. Children should look at inventions that are linked to their age. This can be through the use of TED talk for kids on the internet https://visme.co/blog/ted-talks-kids/</p> <p>Vocabulary: Design- Innovative, Cross-section, survey, design proposal, ergonomics, prototype, Make: Membrane switch, pressure pad, reed switch, resistor, rivet, shaft, side switch, terminal block, clamp, hydraulics, linkage, set square, Evaluate: aesthetics, product analysis</p> <p>Knowledge Children can use their knowledge of a design process to create a survival pack.</p> <p>Year 5 Know how to research the work of designers/ engineers such as; Charles Macintosh, Ruth Benerito. Use their previous knowledge to discuss how even small inventions can impact on the lives of people for generations. They can explain why they have been invented? What problems the inventors may have had and how they were solved? Draw on previous engineering skills to consider everyday products and develop an assessment criteria for the suitability of each material for different purposes (wet/dry/day/night). Use their findings to inform their plan. Make design decisions that take account of the availability of resources.</p> <p>Year 6 Use their knowledge to discuss the work of scientists in the field of materials that have come up with innovative product ideas. Understand the 3 parts of a design process. Know how to use their engineering skills to consider everyday products and establish a ranking based on the suitability of each material for different locations (wet/dry/day/night). Use their research to generate innovative ideas. Make design decisions, taking account of constraints such as time, resources and cost.</p>	<p>Designing Year 5 Use surveys, interviews, questionnaires and web based resources to develop, designs for functional products. Use research to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups and take account of some constraints (time, resources or costs) Use cross-sectional and exploded diagrams within the design presentation. Evaluate Record data and results with increasing complexity to inform the intended outcome. Describe the purpose of their product; appeal to intended users; and how particular parts of the product work.</p> <p>Designing Year 6 Select research techniques such as surveys, interviews, questionnaires and web based resources to develop designs for functional products. Use their research to identify the needs, wants, preferences and values of particular individuals and groups. Use cross-sectional and exploded diagrams to explain their choice of materials and design criteria within their presentation.</p> <p>Evaluate Record data and results with increasing complexity ending with a ranked 'product evaluation and review' for a chosen charity. Use research to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups and take account of some constraints including time, resources and costs</p>

		<ul style="list-style-type: none">♣ 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.	<p>As a team make a mini tent, maybe in the style of a tepee or gazebo, (using dowels or wooden poles, waterproof material/canvas, string for structural support/tension wire), an insulated sleeping bag (using their sewing skills and quilting awareness), waterproof container (using science 'materials' knowledge) and food container that can be used to heat or eat food.</p> <p><i>Can the children use what they have produced for a group based activity? Could a community user evaluate their product?</i></p>	
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Term 4	<p>Term 4 (5 Weeks)</p> <p>Who is trading with whom?</p> <p><i>Previous enquires in LKS2.</i> How can we switch off? How can you feel the force? Why did people travel in the past?</p>	<p>Design</p> <ul style="list-style-type: none"> 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, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> 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, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> 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 	<p>Designer/ Engineer: Research Royal Mint designers that have influenced the coins we have in circulation.</p> <p>Vocabulary: Design- Innovative, survey, design proposal, Make: structure, strengthen, stability, shape, join. Evaluate: function, innovative, research, functional</p> <p>Knowledge Review and evaluate a number of coins based on how they are made or the historical reason for their production. Set their own criteria within their classroom; this may be different to another class but this will allow children to complete a critical analysis of products. The evaluation should focus on the materials used to make the coin, the construction of the coin, and the reason for production. Use historical research to inform their design. Use skills for 'making' that has not previously been used within their year group (this may be a focus on precision of measurement, cutting skills, joining, or may include elements of all). Create coins based on history of trading in local area and beyond. Know how to work within a design team to design, make and present their currency to the client. They are able to evaluate their product and suggest future design modifications. Explain the importance of the currency from a historical perspective, i.e. why coins were important to the local area at that time and why trade was important. Explain the design process from design brief to final product. Explain how they resolved issues and make suggestions for future designs. Make -Cookery Children prepare a savoury dish using a range of cooking techniques that can be bought using their currency.</p>	<p>Designing Year 5 Children design purposeful, functional, appealing products for themselves and other users based on design criteria. Children generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology. Evaluate Children investigate and analyse a range of products. Children evaluate their ideas and products against their own criteria and consider the views of others to improve their work. Children explain their currency that they have developed and why and what they are planning on using it.</p> <p>Designing Year 6 Children use previous research techniques (surveys, interviews, questionnaires and discussion), to develop design criteria that will inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups Children generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes, pattern pieces and computer-aided design Evaluate As year 5 with the following addition; Children understand and explain how key events and individuals in design and technology have helped shape the world</p>
Term 5	<p>Term 5 (7 Weeks)</p> <p>How are you helping to save our planet?</p> <p><i>Previous enquires in LKS2: Cycle A How can we switch off? Cycle A What should you flush down the loo?</i></p>	<p>Design</p> <ul style="list-style-type: none"> 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 <p>Make</p> <ul style="list-style-type: none"> 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 according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> 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 	<p>Designer/ Engineer: use local civil engineers. Engineers and designers should be chosen to reflect the choice of enquiry- this will depend on the focus of the enquiry.</p> <p>Vocabulary: Design- design specification, design brief, design purpose, prototype, and annotated sketches. Make: frame, structure, reinforce, stability, shape, join Evaluate: functional, innovative, relevant</p> <p>Knowledge to Design and make an animal home.eg. Make wooden bird boxes/bat box and bug hotels. Develop their research skills through enquiry 1 and then apply through enquiry 2. Enquiry 1- This enquiry will focus on evaluating products and making suggestions for a design, rather than spending time on evaluating and improving a design. Selected products should be the focus for the children to apply their knowledge of previously taught skills. Learn about the work of local eco-campaigner this should include the school Eco-team; the work of local environmental and conservation charities. Children should watch episodes of Dragon's Den or similar to consider how other small ideas have been successful, such as bamboo-based products, high speed composters, alternatives to liquid soap, phone chargers that switch off when not in use. Enquiry 2 This enquiry will involve the learner being able to evaluate the school environment and use this information to inform the development of a design and ability to produce the product. It should be a large scale project involving all children and cover all aspects of the design process. They will need to use recycled materials to produce environmentally friend resources.</p>	<p>Children should generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and use computer-aided design if a garden design is the chosen enquiry. Explore products that we use every day and evaluate them on an environmental ranking. As part of the design-(To master construction skills) the children need to develop skills for using wood or computer aided design in their production. Children should develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). Children should be able to select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. Children should be able to use measuring tools to accurate mark, cut and assemble the product. Children should follow a design brief and regularly evaluate and amend the process to meet changing circumstances that may occur when using the school environment. Children should be able to discuss how engineers are able to provide solutions to a wide range of problems as well as new-to-the-world ideas. They need to know that ideas for existing problems need to be implemented sooner rather than later.</p>

	<ul style="list-style-type: none"> ♣ understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures ♣ apply their understanding of computing to program, monitor and control their products 	<p>Measure and cut wood to the right length to make bird/bat boxes. Learn how to join two pieces of wood with glue/nails. Attach resources to create a bug house. Design and make a bird feeder.</p>	
<p>Term 6 (4 weeks)</p> <p>Where is our twin?</p> <p><i>Previous enquires in LKS2 that should be used to develop skills and knowledge within this enquiry. Hand drum. Why did people travel in the past? (5) Children will have developed skills for basic sewing in KS1 and KS2</i></p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> ♣ 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 of textiles according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> ♣ 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<ul style="list-style-type: none"> • Designer/ Engineer: Lucienne Day. A woman credited with adding colour back into the wardrobes of Post World War Two Britain, Lucienne Day was inspired by the likes of Kandinsky. ... Cath Kidston. ... William Morris. ... Mary White. . Laura Ashley. ... Terence Conran. <p>Vocabulary: Design- design specification, design brief, design purpose, prototype, and annotated sketches. Make: seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, fastening, pinking shears Evaluate: function, innovative, research findings, functional</p> <p>Knowledge to produce a 3d textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics (Small tile that could be later used as a bookmark).</p> <p>Use research to develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Know how to use skills developed in Year 3/4 for textiles. They should have an understanding of the qualities of materials and can choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper). They should be able to explain how they used different techniques for cutting and joining fabric. Children can use technical vocabulary to explain their design to an audience.</p> <p>Year 5 Transfer a pattern to fabric. Use class discussion to make appropriate choices in relation to stitches to join fabric (back stitch, blanket stitch, running stitch, catch stitch, whip stitch), and apply decorative stitches/tapestry stitches; chain stitch or French knot. (Use sewing PowerPoint in t.drive resources to remind children how to create stiches). Investigate simple quilting techniques. Understand how fabrics can be strengthened, stiffened and reinforces where appropriate, using triangular pieces of fabric or using a backing sheet.</p> <p>Year 6 Draw a pattern and transfer to fabric. Use appropriate stitches to join fabric (back stitch, blanket stitch, running stitch, catch stitch, whip stitch), and apply decorative stitches/tapestry stitches; chain stitch and French knot. Investigate applique within their design (as multiple layers fixed in place).</p>	<p>Children can select from and use a wider range of textiles, according to their functional properties and aesthetic qualities Children can cut materials with precision and refine the finish with appropriate tools (such as scissors, cutting tools, threads) Children can develop a range of practical skills to create products (such as cutting, selecting sewing stiches, selecting appropriate decorations). Children can add features to address aesthetic qualities. Children produce a 3d textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. (This should be as part of an engineering team rather than several individual pieces of work). Children can evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. (There should be evidence of a review and modification of design in the final piece of work).</p>

Term 6	<p>Term 6 (3 Weeks)</p> <p>What do forces actually do?</p> <p><u>Children MUST KNOW AND USE PREVIOUS ENQUIRIES</u> from KS1</p> <p>How will we get around in the future? How do we move around? and <u>from LKS2</u> How can you feel the force? TO INFORM THE EVALUATION OF PRODUCTS IN THIS ENQUIRY.</p>	<p>Design</p> <ul style="list-style-type: none"> 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 <p>Make</p> <ul style="list-style-type: none"> 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 <p>Evaluate</p> <ul style="list-style-type: none"> 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> 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 	<p>Designer/ Engineer: Structural engineers.</p> <p>Fazlur Rahman Khan was a Bangladeshi-American structural engineer and architect who initiated important structural systems for skyscrapers. He is often considered as the greatest structural engineer in 20th century and the "father of tubular designs for high-rises.</p> <p>Vocabulary:</p> <p>Design- specification, design brief, design purpose, prototype, annotated sketches.</p> <p>Make: gears, pulleys, cams, levers and linkages, fulcrum</p> <p>Electrical systems vocabulary.-reed, switch, toggle switch, push to make switch, push to break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED), USB cable, insulator, conductor, control program, series circuit, parallel circuit.</p> <p>Mechanical/mechanisms systems vocabulary</p> <p>Pulley, drive belt, gear, rotation, spindle, drive follower, ratios transmission, mechanical system, electrical system, input process, output process.</p> <p>Evaluate: function, innovative, research, functional</p> <p>Knowledge to make a crazy contraction!</p> <p>Be able to talk about cranes/heavy lifting equipment and explain how the mechanical systems are used (gears, pulleys, cams, levers and linkages) .</p> <p>Look at illustrations of Rube Goldberg’s machines and try to use previous designer knowledge to explain what they do and how they work, before reading the explanations. Children need to use their science knowledge as an engineering team to design a crazy contraption that demonstrates knowledge of different mechanisms (levers, pulleys, gears).</p> <p>The final design should be an annotated sketch or diagram (as large scale/detailed as possible), complete with a clear explanation. (Year 6 children should be able to demonstrate their engineering knowledge and skills to present their design to a critical audience).</p> <p>Children use previous knowledge, annotated sketches, cross-sectional and exploded diagrams to explain a design for a machine.</p> <p>Children know how to make paper planes and/or boats to investigate the effect of streamlining on air and water resistance.</p> <p>Electrical systems knowledge</p> <p>Children understand and use electrical systems in their products linked to science coverage.</p> <p>Children use technical vocabulary relevant to the enquiry.</p> <p>Mechanical systems knowledge</p> <p>Children understand that mechanical and electrical systems have an input, process and output.</p> <p>Children understand how gears and pulleys can be used to speed up, slow down or change the direction of a movement.</p> <p>Children know and use technical vocabulary relevant to the enquiry.</p>	<p>Design</p> <p>Generate innovative ideas through research including surveys, interviews, questionnaires and discussion.</p> <p>Investigate and analyse a range of existing products.</p> <p>Understand how key events and individuals in design and technology have helped shape the world.</p> <p>Use their engineering skills from previous enquiries to present a detailed analysis of their product.</p> <p>Make/Evaluate</p> <p>Children communicate ideas through annotated sketches and pictorial representations from different views.</p> <p>Evaluate.</p> <p>Children understand and describe mechanical systems in their evaluation of products [for example, gears, pulleys, cams, levers and linkages]</p> <p>Children understand and describe electrical systems in their evaluation of products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p>
	<p>1 Week</p> <p>What makes a good performance great?</p>		<p>NOT Engineering</p>	

Barrs Court Primary School Design Technology Knowledge and Skills progression – Green Area Yearly Overview – 2025-2026

	Enquiry	National Curriculum Objectives	Key Knowledge and vocabulary	Design Technology skills
Term 1	Term 1 (7 Weeks) How do we all live together?		NOT DT OR ART	
Term 2	Term 2 (7 Weeks) How are lives saved?		NOT DT OR ART	
Term 3	Term 3 (5 Weeks) Where does our food really come from? <u>Previous enquires that will inform Y5/6 planning:</u> Y3/4 Why are more people becoming vegetarian?	<p>Design ♣ use research and develop design criteria to inform the design of innovative, functional, appealing products.</p> <p>Make ♣ select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities</p> <p>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</p> <p>Food ♣ 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.</p>	<p>Designer/ Engineer: select local food engineers e.g. Engineering Design graduate from Bristol university Charlie Guy founds Lett Us Grow with fellow students Ben Crowther and Jack Farmer to produce low carbon food.</p> <p>Vocabulary: Design- , survey, design proposal, design specification, functional, appealing, aesthetic Make: fat, sugar ,carbohydrate ,protein, vitamins, nutrients, varied, gluten, daily, allergy, intolerance, savoury, source, processed, reared, seasonality, combine, fold, blend, whisk, beat, roll, shape, crumble. Evaluate: product analysis</p> <p>Knowledge Make locally sourced dishes with a range of ingredients. Explain the origin and journey of food products. Give reasons why food might be sourced locally or from another country. Explain the importance of healthy food choices. Talk about seasonality and how food is processed. Use extensive research to inform the design decisions. Explain how specific aspects of their design ideas or products will meet users’ needs, wants and preferences. Distinguish between the physical or functional properties and the aesthetic qualities that give products their appearance, texture, taste and aroma.</p>	<p>Research where food is grown in the UK. Use previous knowledge and skills for safe food preparation Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). 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. Use relevant technical and sensory vocabulary to evaluate their product.</p>
Term 4	Term 4 (6 Weeks) Linnaeus and Darwin: What connects them?		ARTIST FOCUS	
Term 5	Term 5 (4 Weeks) Why are shadows important?		ARTIST FOCUS	

Term 5/6	Term 5/6 (4 Weeks)	<p>Who were the greatest engineers? The Victorians or Ancient Britons. (4)</p> <p>What did Brunel do for Great Britain? Leonardo da Vinci for his bridge design. Isambard Kingdom Brunel Wright brothers. Alexander Graham Bell Previous enquires KS2 What do forces actually do?</p>	<p>Design</p> <ul style="list-style-type: none"> ♣ 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 <p>Make</p> <ul style="list-style-type: none"> ♣ 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 <p>Evaluate</p> <ul style="list-style-type: none"> ♣ 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> ♣ 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 	<p>Designer/ Engineer., (REVIEW designers and engineers that have been part of previous research in KS1 and LKS2) Focus on local engineers that have been influenced by engineers in history. The suspension bridge and Bristol docks should be a key factor in this enquiry.</p> <p>Vocabulary: Design- architecture, invention, innovative, functional, appealing, annotated sketch, specification, Make: components, raw materials, construction, electrical system, mechanical system, exert, pressure, pulley, levers, drive belt, spindle, rotation, ratio, input process (LDRs), output process, pneumatic systems, prototype, reinforce, triangulation, stability, temporary, permanent, Evaluate: Linear, reciprocating, rotary,</p> <p>Knowledge To make a fairground from the past using cardboard or wood. Names of famous inventors that have been part of enquiries in KS1 and KS2 and can explain how their work has impacted on modern designs and inventions. (Thomas Edison Wright brothers, I.K.Brunel – what did he do? How did he design? What did he use? How did he achieve his outcomes? <i>Engineers PowerPoint on T.drive.</i> Identify and explain the greatest engineers or achievements. Use their Stone Age to Iron Age research to explain inventions involving weapons, jewellery and household items. Apply skills for strengthening, stiffening & reinforcing more complex structures and explain why they have made these choices within the design. Incorporate gears, pulleys, cams, levers and linkages into their design. Children can apply understanding of computing to program, monitor and control their products.</p> <p>Year 5 Explain how engineers have made a difference to the world we live in. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagram. Know how mechanical systems such as cams and pulleys or gears create movement. Explain why the mechanical components are suitable for the product they are designing and making according to the type of movement they produce. Use trial and error to improve design – go through 3 rotations of the design to decide final product.</p> <p>Year 6 Build prototypes and parts pattern pieces, testing and redesigning. Test results to make predictions to set up further comparative and fair tests</p>	<p>Investigate and analyse a range of existing products Children can apply their understanding of how to strengthen, stiffen and reinforce more complex structures. 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 Apply previously taught skills for designing, making and evaluating products. Formulate a step by step plan to guide making, listing tools, equipment, materials and components Select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to provide reliable functional products. Demonstrate cutting, shaping, joining and finishing skills using wood. Present their design to a critical audience.</p>
	Term 6 (4 Weeks)	<p>How big is your footprint: ecological/digital/carbon?(4)</p>	ARTSIS FOCUS		