

D+T Curriculum Overview: Bushey Heath Primary School Yr1

Design and Technology should inspire and challenge pupils to design and make products that solve real and relevant problems within a variety of contexts. They will draw on other disciplines, take risks and become resourceful, innovative, enterprising and capable citizens through evaluation of past and present technology. They will develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Intent: To build on the National Curriculum by adapting and extending to suit our children. An inspiring and exciting curriculum ensures that Bushey Heath provides a Design Technology curriculum which is as rigorously applied as core.

	Autumn:	Spring	Summer
Knowledge Key Area of Focus	<p>Mechanisms</p> <p>To develop an understanding of simple mechanisms through designing and making moving pictures.</p> <p>To develop their understanding of how movement can be created by investigating everyday products and making simple levers and sliders from given examples.</p>	<p>Eat more fruit and vegetables. Focus: cooking</p> <p>To develop an understanding of designing and making with food and the importance of healthy eating.</p> <p>To make choices based on the properties of different fruit and vegetables in order to design and make a product for a particular occasion</p> <p>To investigate and taste different foods and develop vocabulary to describe the appearance, taste, smell and texture.</p>	<p>Playgrounds : Focus: Structures-making models</p> <p>To explore a range of full-size items of playground equipment and make own models.</p> <p>To learn about framework structures, how to make them stable and able to support loads. To investigate materials used for play equipment, the different parts of the equipment, and how they have been assembled.</p> <p>To develop their use of construction kits, combined with reclaimed materials.</p> <p>The main outcome of this unit will be to design and make a model of an item of playground equipment eg slides, swings, roundabouts, climbing frames and adventure playground equipment.</p>
Skills	<ul style="list-style-type: none"> • Use tools safely to make a moving picture that incorporates a simple lever or slider; eg hole punch, paper fastener, join, cut carefully, • Use given techniques to practise making skills and as a starting point for developing own ideas. • Talk about how simple moving products work • Make simple judgements about their work eg 'The lever is a bit floppy, but I could stiffen it with a lolly stick', 'I am pleased with the way the boat moves but sometimes it gets stuck'; 	<ul style="list-style-type: none"> • Gain an understanding of a range of fruit and vegetables, including taste, texture and appearance. • Recognise that it is important to eat more fruit and vegetables • Prepare and combine ingredients into a specific product; by using basic tools safely. • Begin to justify their choices as they design and make their product. 	<ul style="list-style-type: none"> • Investigate a range of actual items of playground equipment. • Join construction kit components together and combine them with other materials eg card, reclaimed materials, doweling and string. • Construct a realistic model of an item of playground equipment. • Be able to talk about how it is appropriate for the intended user.

	have been able to explain how the lever or slider works and will have recorded through drawing and labelling.		
Vocabulary	Designing, idea, discuss, choose, drawing, labelling, making, moving, handle, lever, pivot, pull, push, slider, direction, blade, metal, balance, movement, forward, backwards, order, sequence, length	Designing, choosing, investigating, tasting, arranging, experimenting, popular, sort, block graph, pictogram · making eg washing, cleaning, peeling, cutting, slicing, grating · salad, fruit, vegetables, peel, flesh, skin, grater, chopping board, peeler, seeds, pips, stalk, juice, root, leaf, stone, bunch - sensory eg crisp, sharp, juicy, sweet, sour, sticky, squashy, smooth, crunchy, scented, waxy	Designing, drawing, model, plan, parts, construction kits, join, fix framework, movement, structure, weak, strong, on top of, underneath, side, edge, surface, thinner, thicker, corner, point, symmetrical edge, straight, curved - metal, wood, plastic, swing, see-saw, roundabout, climbing frame, slide, rocking horse – shapes, circle, triangle, square, rectangle and 3D shapes eg cuboid, cube
Concepts	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, and a range of materials, including food.</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • The ability to use time efficiently and work constructively and productively with others. • The ability to manufacture products safely and hygienically. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, and a range of materials, including food.</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • The ability to use time efficiently and work constructively and productively with others. • The ability to manufacture products safely and hygienically. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, and a range of materials, including food.</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • The ability to use time efficiently and work constructively and productively with others. • The ability to manufacture products safely and hygienically.
Lesson Structure	To evaluate the work of others – focusing on past and present technology	To evaluate the work of others – focusing on past and present technology	To evaluate the work of others – focusing on past and present technology
Week 1 Research		Working in a range of relevant contexts – e.g. home/ school/ gardens and playgrounds/ local	Working in a range of relevant contexts – e.g. home/ school/ gardens and

	Working in a range of relevant contexts – e.g. home/ school/ gardens and playgrounds/ local community/ industry and the wider environment.	community/ industry and the wider environment.	playgrounds/ local community/ industry and the wider environment.
Week 2 Research	To research different techniques and skills, practise and apply Explore and evaluate a range of existing products	To research different techniques and skills, practise and apply Explore and evaluate a range of existing products	To research different techniques and skills, practise and apply Explore and evaluate a range of existing products
Week 3 Practise and apply	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills
Week 4 Practise and apply	Design purposeful/ functional products based on design criteria Use: Talking/ drawing/ templates/ mock-up and communication technology	Design purposeful/ functional products based on design criteria Use: Talking/ drawing/ templates/ mock-up and communication technology	Design purposeful/ functional products based on design criteria Use: Talking/ drawing/ templates/ mock-up and communication technology
Week 5 Make product	Select from and use a range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing Select from and use a range of materials and components including construction materials, textiles and ingredients according to their characteristics	Select from and use a range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing Select from and use a range of materials and components including construction materials, textiles and ingredients according to their characteristics	Select from and use a range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing Select from and use a range of materials and components including construction materials, textiles and ingredients according to their characteristics
Week 6 Evaluate/ understand	Critique, evaluate and test ideas and products Evaluate their product against design criteria	Critique, evaluate and test ideas and products Evaluate their product against design criteria	Critique, evaluate and test ideas and products Evaluate their product against design criteria
Resources	A selection of products with moving parts eg scissors, balances, storybooks, badges, puppets, cards · a selection of favourite storybooks · disposable pictures which can be cut up for experimentation · paper, card, pre-cut strips of card · paper fasteners, masking tape, glue, plier punch or single-hole punch, scissors, stanley knives · a selection of coloured papers, pens, paints · construction kits	A range of fruit and vegetables (including some unusual fruit/vegetables) · plates, dishes, bowls, peeler, grater, chopping board, plastic mixing bowls, vegetable knives, forks, spoons · plastic table covers, antibacterial cleaner, access to hand-washing and washing-up facilities, aprons	Books, photographs of playground equipment · construction kits, including kits which can be used to construct semi-rigid frameworks · sheet materials eg plywood, paper, card, plastics · reclaimed materials eg small containers, egg boxes, cotton reels · string, adhesive tape · joining materials eg glue guns, plasticine or similar modelling material · finishing materials eg paint · scissors, snips, hole punch, stapler, hammer, nails

D+T Curriculum Overview: Bushey Heath Primary School Yr2

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	Autumn: Mechnasims	Spring	Summer
Knowledge Key Area of Focus	<p>Explore and use mechanisms e.g. wheels and axles</p> <p>To experience joining and combining sheet and reclaimed materials and of using moving joints.</p> <p>To learn about wheels and axles and how to use these when making wheeled vehicles for a specific purpose.</p> <p>To develop design ideas based on investigating vehicles in the world around them.</p> <p>To use construction kits, and computer generated graphics or text to enhance their finished products, to apply basic measuring skills and to draw on knowledge of forces from science.</p>	<p>Explore mechanisms and structures Winding up</p> <p>To introduce the concept of winding mechanisms, building on previous knowledge of wheels and axles.</p> <p>To explore how to make winding mechanisms using construction kits and discuss.</p> <p>To make their own toy using a winding mechanism out of reclaimed materials.</p>	<p>Joining with textiles - puppets</p> <p>To make a textile product by marking out, cutting and joining pieces of fabric.</p> <p>To look at a selection of hand puppets and base their design on their investigations into how the puppets have been made and who they have been designed for.</p>
Skills	<p>To gain an understanding of how simple mechanisms related to moving vehicles work.</p> <p>To clarify ideas through discussion.</p> <p>To make a wheeled vehicle which moves and which generally matches design intention.</p>	<p>Through experimenting with a range of winding mechanisms children learn:</p> <p>Techniques for making winding mechanisms</p> <p>To use tools accurately and safely</p> <p>To assemble, join and combine materials to make a winding mechanism</p> <p>To understand the need for a stable structure to support a mechanism</p> <p>To evaluate against design criteria</p>	<p>To learn to use basic sewing techniques</p> <p>To use a template to mark out identical pieces of fabric</p> <p>To compare joining techniques</p> <p>To use simple vocabulary associated with the use of textiles</p>

Vocabulary	Designing, purpose, ideas, discuss, explore, predict, guess, survey, table, venn diagram, most/least common · making, joining, combining, connecting, testing, punching, vehicle, wheels, chassis, axles, doweling, hole punch, logo, distance	Designing eg explore, investigate, choose, decide, brainstorm, fast, faster, fastest, slow, slower, slowest, quick, quicker, quickest · making eg collecting, punching, connecting, fixing, straight, doweling, masking tape, hole punch, cotton reel · knowledge and understanding eg axle, winding mechanism, stable, structure, handle, turning, free, fixed, second, minute, timer	Designing, user, list, label, drawing, ideas, mock-up, choose, decide, evaluate, try out ideas, standard unit · making eg plan, template, fabric, cutting out, sewing, needle, running stitch, gluing, adding · knowledge and understanding, eg character, puppet, seam, stitch, thread, strong, quality, features, strengthen, reflective symmetry, position, to, towards
Concepts	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop a knowledge of users' needs. • The ability to manufacture products safely and hygienically. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop a knowledge of users' needs. • The ability to manufacture products safely and hygienically. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop a knowledge of users' needs. • The ability to manufacture products safely and hygienically.
Week 1 Research	To evaluate the work of others – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ gardens and playgrounds/ local community/ industry and the wider environment.	To evaluate the work of others – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ gardens and playgrounds/ local community/ industry and the wider environment.	To evaluate the work of others – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ gardens and playgrounds/ local community/ industry and the wider environment.
Week 2 Research	To research different techniques and skills, practise and apply Explore and evaluate a range of existing products	To research different techniques and skills, practise and apply Explore and evaluate a range of existing products	To research different techniques and skills, practise and apply Explore and evaluate a range of existing products

Week 3 Practise and apply	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills
Week 4 Practise and apply	Design purposeful/ functional products based on design criteria Use: Talking/ drawing/ templates/ mock-up and communication technology	Design purposeful/ functional products based on design criteria Use: Talking/ drawing/ templates/ mock-up and communication technology	Design purposeful/ functional products based on design criteria Use: Talking/ drawing/ templates/ mock-up and communication technology
Week 5 Make product	Select from and use a range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing Select from and use a range of materials and components including construction materials, textiles and ingredients according to their characteristics	Select from and use a range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing Select from and use a range of materials and components including construction materials, textiles and ingredients according to their characteristics	Select from and use a range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing Select from and use a range of materials and components including construction materials, textiles and ingredients according to their characteristics
Week 6 Evaluate/ understand	Critique, evaluate and test ideas and products Evaluate their product against design criteria	Critique, evaluate and test ideas and products Evaluate their product against design criteria	Critique, evaluate and test ideas and products Evaluate their product against design criteria
Resources	Toy vehicles, models, pictures of vehicles, video of vehicles moving · various types of wheels, including wooden and plastic wheels, cotton reels and card discs · collage materials · straws, doweling and plastic tubing, reclaimed boxes, card, clothes pegs, single-hole punch or card punch, thin corrugated plastic sheet, hand saws simple jigs for holding materials · computer and printer with paint, draw or graphics programs	Picture book showing 'Incy Wincy Spider' · construction kits suitable for making winding mechanisms · card, cardboard boxes, doweling, string, cotton reels, pegs, lolly sticks for handles · masking tape, glue, pipe-cleaners, stapler · materials for finishing eg coloured papers and card, fabric, felt-tip pens, paint · scissors, snips, hole punch, bradawl, hacksaw, sawing jig	Examples or pictures of a variety of finger and hand puppets from a range of cultures · fabric for learning sewing techniques eg plastic mesh, binca, hessian · fabric for puppets, preferably non-fraying eg felt, dipryl (which is used for making disposable cloths) · doweling · templates, fabric scissors · needles, thread, fabric glue, stapler · felt-tip pens, wool, sequins, buttons, small pieces of fabric to use as features for the puppets

D+T Curriculum Overview: Bushey Heath Primary School Yr3

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Autumn: Joinig structures 3D Photographs

Spring: Control and mechanisms Moving Monsters focus control and mechanisms

Summer Sandwich snacks – focus food

<p>Knowledge Key area of focus</p>	<p>Explore stiffening materials and making stable structures through the context of free-standing photograph frames.</p>	<p>to develop children’s understanding of control through investigating simple pneumatic systems and designing and making a model of a monster that has moving parts controlled by pneumatics. This could be linked to stories or poems, or another purpose. A good context is toys to amuse children who are ill in bed. The designing and making assignment requires children to develop skills in working as part of a team.</p>	<p>learn basic food preparation techniques and ways of combining components to create simple food products for a particular purpose. They develop their designing skills by using their own experiences and evaluating existing products to develop ideas. Through discussion, they develop criteria for their design proposals and suggest ways to proceed. They develop their making skills by learning to combine components according to taste, appearance or texture to create a product that contributes to a healthy diet. Through this activity children develop an awareness of health and safety and learn that the quality of the product depends on how well it is made and presented.</p>
<p>Skills</p>	<p>To implement their prior learning about stiffness and stability into their design proposals</p> <p>To make drawings with labels when designing</p> <p>To evaluate their product against their original design criteria</p>	<p>To think about ideas and make progress and be willing to change things if this helps them to improve their work</p> <p>To plan through discussion</p> <p>To work safely and accurately with a range of simple hand tools</p> <p>To use a storyboard to record the sequence of their work</p> <p>To evaluate as a team the product and purpose of improvements</p>	<p>To have used information from an evaluation activity to select and prepare a range of sandwich ingredients for a purpose</p> <p>To combine the ingredients to create an appealing sandwich.</p> <p>To consider how well their sandwich meets the original purpose.</p> <p>To have an understanding of the ‘balanced plate’ model for healthy eating and will have applied this to ideas about how their healthy sandwich.</p>
<p>Vocabulary</p>	<p>designing user, choice, decoration, quality, component parts, purpose · making eg planning, order, rolling, layering, cutting, finish, board · knowledge and understanding eg stable, free-standing, stiffen, frame,</p>	<p>designing brainstorm, suggestion, evaluate, ideas, constraints, appropriate, graph, data, sort, order, set, label, title, list, probable, possible, impossible · making eg planning, storyboard, components, fixing, tubing, syringe,</p>	<p>designing texture, taste, appearance, healthy, preference, criteria, cost, questionnaire, data, frequency diagram · making eg cut, mix, spread, slice, blend, grate, chop, chopping board, knife, grater ·</p>

	<p>sturdy, reinforce, quality, distance, near, close, wide, narrow, deep, shallow, thick, thin</p> <p>Originality manufacture products</p>	<p>attaching, finishing · knowledge and understanding eg control, pneumatic system, pressure, inflate, deflate, input, output, pump, hinge, fastest, slowest, often,</p> <p>Originality manufacture products</p>	<p>knowledge and understanding eg sandwich, filling, ingredients, fridge, food groups, hygiene, high risk, healthy eating, 'balanced plate', thick, thin - sensory eg sweet, sour, bitter, salty</p> <p>Originality manufacture products</p>
Concepts	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to manufacture products safely and hygienically. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to manufacture products safely and hygienically. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources , to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to manufacture products safely and hygienically.
Week 1 Research	To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts –	To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts – e.g.	To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts –

	e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment. Understand how key events and individuals in design technology have helped shape the world.	home/ school/ leisure / culture/ enterprise and then industry and the wider environment. Understand how key events and individuals in design technology have helped shape the world.	e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment. Understand how key events and individuals in design technology have helped shape the world.
Week 2 Research	To research different techniques and skills, practise and apply To use research and develop design criteria to inform the design of innovative / functional/ appealing products that are fit for purpose and aimed at particular individuals or group. Explore and evaluate a range of existing products	To research different techniques and skills, practise and apply To use research and develop design criteria to inform the design of innovative / functional/ appealing products that are fit for purpose and aimed at particular individuals or group. Explore and evaluate a range of existing products	To research different techniques and skills, practise and apply To use research and develop design criteria to inform the design of innovative / functional/ appealing products that are fit for purpose and aimed at particular individuals or group. Explore and evaluate a range of existing products
Week 3 Practise and apply Week 4 Practise and apply	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design	To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design
Week 5 Make product	Select from and use wider range of tools and equipment to perform practical tasks e.g. 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 their aesthetic qualities.	Select from and use wider range of tools and equipment to perform practical tasks e.g. 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 their aesthetic qualities.	Select from and use wider range of tools and equipment to perform practical tasks e.g. 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 their aesthetic qualities.
Week 6 Evaluate/ understand	Critique, evaluate and test ideas and products To consider the views of others to improve their work	Critique, evaluate and test ideas and products To consider the views of others to improve their work	Critique, evaluate and test ideas and products To consider the views of others to improve their work

Resources	<p>Examples of stable structures eg mug tree, tripod, stool, music stand · examples of free-standing photograph frames · camera and film · variety of construction kits, suitable for developing understanding of structures · materials for decoration eg paint, fabric, colour magazines for collage, sequins · newspaper, board, thick card, thin card, recycled card eg cereal-packet card, acetate sheets eg overhead transparencies, squared paper · PVA glue, masking tape, paper clips, scissors, snips, pipe-cleaners</p>	<p>Examples of products that use air eg pneumatic toys, foot pump for inflating air mattress, balloon pump · washing-up liquid bottles, 5mm diameter plastic tubing, balloons, sterile syringes · construction kits · suitable reclaimed materials, card, plastic sheet · materials for finishing eg coloured papers, paint, papier mâché, fabric, foil · PVA glue, masking tape, parcel tape, lower temperature glue gun, pipe-cleaners · scissors, snips</p>	<p>Pictures/images of sandwiches and fillings · a selection of different types of sandwiches · a variety of breads · ingredients suitable for spreads and fillings · plastic table covers, antibacterial cleaner, hand-washing and washingup facilities, aprons · tools and equipment eg knives, chopping boards, graters, plates, bowls, plastic film · access to oven</p>
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D+T Curriculum Overview: Bushey Heath Primary School Yr4

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	Autumn: Money Containers Focus – Structures: textile	Spring – Focus: control - electrics	Summer – lighting it up – control: electrical and computer
Knowledge Area of focus	<p>To learn how textiles containers eg purses, wallets and belt bags are designed for different purposes and different users.</p> <p>Design patterns/templates, and join and reinforce fabrics.</p> <p>Develop designing skills when evaluating products and use this information to generate their own ideas and identify design criteria.</p> <p>Communicate their early ideas through modelling with paper or inexpensive fabric, and use decorative techniques eg dyeing and embroidery.</p>	<p>To apply knowledge about electric circuits that they acquire in science in a purposeful way by designing and making a simple torch.</p> <p>Define a set of clear specifications for the torch by considering who will use it and the conditions under which it might be used.</p> <p>The children also consider how the torch can be controlled by designing and making their own switch.</p>	<p>To develop an understanding of simple electrical control through the designing and making of an alarm system.</p> <p>To be introduced to the idea of feedback.</p> <p>The designing and making assignment involves an alarm system to protect a valuable artefact which has been brought into the classroom. The children could experiment with the use of a control program.</p>
Skills	<p>To have sufficient understanding and skills in working with textiles</p> <p>To design and make a money container that meets their design criteria</p> <p>To evaluate existing products, test fabrics to choose an appropriate one</p> <p>To have applied decorative techniques appropriately</p>	<p>To have reinforced their understanding of how a simple battery-operated circuit works and how this can be controlled by employing different kinds of switch.</p> <p>To have made a torch, identifying the specific needs of a chosen user and evaluating it against design criteria.</p>	<p>To have drawn on their understanding of simple electrical circuits and switches to help them generate ideas about their alarm; have produced a labelled drawing to communicate their ideas to others.</p> <p>To have joined components and cut and shaped materials with some precision to help assembly</p> <p>To have joined the materials of their device using a range of appropriate techniques;</p>

			have used a control program to activate their alarm
Vocabulary	designing eg user, purpose, design criteria, model, evaluating, labelled drawings, stiffening, reinforcing, coins, notes · making eg pattern/templates, strength, weaknesses, accurate, finishing · knowledge and understanding eg fabric, fastening, compartment, zip, press stud, clasp, hook and eye, button, buckle, seam, seam allowance, reinforce, gusset, dye, embroidery - properties eg strength, hard-wearing, stretch, fray	designing eg user, specific, plan, labelled drawings, decide, list, classify · making eg clip, rectify fault, screw, connect, join · knowledge and understanding eg electricity, circuit, battery, battery holder, bulb, bulb holder, wire, insulation, crocodile connector, aluminium foil, switch, reflector, energy	designing eg prototype, labelled drawings, communicate, model · making eg join, circuit, alarm, rectify fault, connection · knowledge and understanding eg circuit, toggle switch, push-to-break, push-to-make, reed switch, tilt switch, rocker switch, slide switch, micro switch, feedback, am, pm, timer, control, sensor, input, output, switch on/off, wait
Concepts	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask

	<p>questions to develop an exceptionally detailed knowledge of users' needs.</p> <ul style="list-style-type: none"> • A thorough knowledge of which tools, equipment and materials to use to make their products. • The ability to apply mathematical knowledge. • The ability to manage risks exceptionally well to manufacture products safely and hygienically. 	<ul style="list-style-type: none"> • A thorough knowledge of which tools, equipment and materials to use to make their products. • The ability to apply mathematical knowledge. • The ability to manage risks exceptionally well to manufacture products safely and hygienically. 	<p>questions to develop an exceptionally detailed knowledge of users' needs.</p> <ul style="list-style-type: none"> • A thorough knowledge of which tools, equipment and materials to use to make their products. • The ability to apply mathematical knowledge. • The ability to manage risks exceptionally well to manufacture products safely and hygienically.
Week 1 Research	<p>To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment. Understand how key events and individuals in design technology have helped shape the world.</p>	<p>To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment. Understand how key events and individuals in design technology have helped shape the world.</p>	<p>To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment. Understand how key events and individuals in design technology have helped shape the world.</p>
Week 2 Research	<p>To research different techniques and skills, practise and apply To 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. Explore and evaluate a range of existing products</p>	<p>To research different techniques and skills, practise and apply To 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. Explore and evaluate a range of existing products</p>	<p>To research different techniques and skills, practise and apply To 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. Explore and evaluate a range of existing products</p>
Week 3 Practise and apply Week 4 Practise and apply	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>

<p>Week 5</p> <p>Make product</p>	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p> <p>Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.</p>	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p> <p>Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.</p>	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p> <p>Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.</p>
<p>Week 6</p> <p>Evaluate/ understand</p>	<p>Critique, evaluate and test ideas and products To consider the views of others to improve their work</p>	<p>Critique, evaluate and test ideas and products To consider the views of others to improve their work</p>	<p>Critique, evaluate and test ideas and products To consider the views of others to improve their work</p>
<p>Resources</p>	<p>Collection of purses, wallets, belt bags made from different materials, from different cultures, and with a range of fastenings · selection of fabrics eg felt, calico, hessian · selection of fastenings used on purses, wallets and bags · scissors for fabric, thread, tape, needles, fabric glue · materials for decorative techniques eg embroidery thread and needles, dye, fabric crayon and paints</p>	<p>A collection of torches, lights and lamps for a variety of purposes · batteries (the 4.5 volt 'flat' batteries are easily connected in a circuit), battery holders (if cylindrical batteries are used), bulbs, bulb holders, crocodile connectors, lengths of connecting wire, aluminium foil · paper fasteners, paper clips, drawing pins, selection of suitable sheet materials, construction card, sticky tape · adhesive, reflective materials, scissors, stapler · wire stripper and cutter, small electrical screwdriver</p>	<p>A press switch, toggle or rocker switch, slide switch, push-to-make switch, push-to-break switch, reed switch and magnet, tilt switch (non mercury), micro switch · buzzer · lamp, lamp holder · LED (light emitting diode), batteries, battery holder, battery clip · wood, card, coloured paper, fabrics · adhesives · suitable control programs or programmable chip · simple control interface</p>

D+T Curriculum Overview: Bushey Heath Primary School Yr5

Design and Technology should inspire and challenge pupils to design and make products that solve real and relevant problems within a variety of contexts. They will draw on other disciplines, take risks and become resourceful, innovative, enterprising and capable citizens through evaluation of past and present technology. They will develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Intent: To build on the National Curriculum by adapting and extending to suit our children. An inspiring and exciting curriculum ensures that Bushey Heath provides a Design Technology curriculum which is as rigorously applied as core.

	Autumn: moving Toys Focus: Control and Mechanisms	Spring: Cooking: – Focus: Food -Bread	Summer Focus: Savoury biscuits
Knowledge Area of focus	<p>To learn about controlling movement with a cam mechanism as part of a simple toy.</p> <p>They develop their designing skills by using information sources to generate ideas and formulate an understanding of how mechanisms can be used to produce movement.</p> <p>They extend their making skills by developing techniques in cutting, shaping and joining to combine components and by selecting tools and equipment to measure and cut accurately.</p>	<p>To develop children’s understanding of, and skills in, working with food through a range of activities related to bread products.</p> <p>To gain knowledge and understanding from investigating existing products and exploring the functions and properties of ingredients.</p> <p>Use this knowledge when designing and making their own bread products.</p> <p>Use a range of skills and techniques using basic food tools and equipment and taking account of appropriate safety and hygiene issues.</p>	<p>To develop children’s skills, knowledge and understanding of food, building on the previous units in which children prepared food products using simple processes.</p> <p>To learn how to adapt a basic recipe to develop a product with specified criteria.</p> <p>To investigate existing products from all cultures will inform design ideas.</p>
Skills	<p>To have used their knowledge of the movement made by the cam in the design of their toy.</p> <p>To have produced sketches and step-by-step plans and identified tools and materials.</p> <p>To have measured, marked out and cut accurately, evaluating their work as it develops and at the end</p>	<p>To have used their experiences of food ingredients and cooking methods to help generate ideas.</p> <p>To have explained why they have chosen certain foods and processes; have produced an order of work and chosen equipment appropriately.</p> <p>To have made and evaluated their bread product against objective design criteria; have a clear understanding of issues related to food safety and hygiene</p>	<p>To have used their experiences of using food to help generate ideas.</p> <p>To have explained why they have chosen certain foods and processes; have followed an order of work and have chosen equipment appropriately.</p> <p>To have made and evaluated a new biscuit for a particular occasion/person.</p> <p>To have used tools and equipment safely and tried to be accurate in their making</p>
Vocabulary	<p>Sequence, annotated diagram, sketch, decision, choice, prototype, model, communicate · making eg shape, assemble, accurate, saw, mark out · knowledge and understanding eg cam, mechanism,</p>	<p>Evaluating, investigation, preferences, profile, specification, criteria, fair test, costing · making eg ingredients, quantities, shaping, mixing, topping, kneading, proving, baking, cooking method, grilling, boiling, frying, glazing ·</p>	<p>Investigate, research, evaluate, brainstorm, consumer, quality, specification · making eg combining, creaming, mixing, finishing, sandwiched, hygiene, antibacterial · knowledge and understanding eg names of</p>

	<p>movement, linear motion, rotary motion, pivot, off-centre, axle, force, framework, follower, guide, offset, shaft</p> <p>ETHICALLY FINITE</p>	<p>knowledge and understanding eg yeast, wheat, grain, flour, dough, crust, rise - names of tools and equipment - sensory characteristics eg texture, doughy, crisp, chewy, yeasty, stretchy, elastic - food safety eg hygiene, bacteria, mould, decay, food poisoning</p>	<p>equipment and ingredients, names of products, quality control, texture, flavour, crisp, crunchy, sticky, soft dough, elastic dough</p>
<p>Concepts</p>	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. • A thorough knowledge of which tools, equipment and materials to use to make their products. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. • A thorough knowledge of which tools, equipment and materials to use to make their products. • The ability to apply mathematical knowledge. 	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p> <p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. • A thorough knowledge of which tools, equipment and materials to use to make their products.

	<ul style="list-style-type: none"> The ability to apply mathematical knowledge. The ability to manage risks exceptionally well to manufacture products safely and hygienically. 	<ul style="list-style-type: none"> The ability to manage risks exceptionally well to manufacture products safely and hygienically. 	<ul style="list-style-type: none"> The ability to apply mathematical knowledge. The ability to manage risks exceptionally well to manufacture products safely and hygienically.
Week 1 Research	<p>To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment.</p> <p>Understand how key events and individuals in design technology have helped shape the world.</p>	<p>To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment.</p> <p>Understand how key events and individuals in design technology have helped shape the world.</p>	<p>To evaluate the work of other – focusing on past and present technology Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment.</p> <p>Understand how key events and individuals in design technology have helped shape the world.</p>
Week 2 Research	<p>To research different techniques and skills and to practise and apply To 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> <p>Explore and evaluate a range of existing products</p>	<p>To research different techniques and skills and to practise and apply To 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> <p>Explore and evaluate a range of existing products</p>	<p>To research different techniques and skills and to practise and apply To 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> <p>Explore and evaluate a range of existing products</p>
Week 3 Practise and apply Week 4 Practise and apply	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge, understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>
Week 5 Make product	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p>	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p>	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p>

	Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.	Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.	Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.
Week 6 Evaluate/ understand	Critique, evaluate and test ideas and products To consider the views of others to improve their work	Critique, evaluate and test ideas and products To consider the views of others to improve their work	Critique, evaluate and test ideas and products To consider the views of others to improve their work
Resources	A collection of toys containing cams · construction kits · stiff sheet materials, eg card, foamboard, corrugated plastic, prepared cams (shaped and off-centre wheels) · wooden wheels, doweling, cardboard boxes or wooden frames · PVA glue, masking tape · tools and equipment – bench hooks, saws, hand drill, G-cramp, round file, single-hole punch, paper drill, metal safety ruler, craft knife, cutting mats and glue gun (for teacher use)	A range of bread products (see Points to note) and bread recipes · flours – white, strong, granary and wholewheat · yeast · small quantities of added ingredients eg cheese, onion, herbs, spices, dried fruits, seeds, apples, bananas · tools and equipment eg weighing scales, mixing bowls, chopping boards, measuring jugs, graters, spoons, rolling pins, pastry brush, bread tins, baking trays, dinner knives · access to an oven · plastic table covers, antibacterial cleaner, hand-washing and washing-up facilities, aprons · computer, CD-ROM or access to websites	A range of different types of biscuits · ingredients for basic recipes · additional ingredients eg dried fruit, chocolate chips, food flavouring, oats, bran · food equipment – mixing bowls, spoons, forks, knives, weighing scales, cups, chopping board, cutters, baking tray, cooling rack · oven gloves, washing-up cloths, tea towels, cleaning cloths · plastic table covers, antibacterial spray, hand-washing and washing-up facilities, aprons · access to oven

D+T Curriculum Overview: Bushey Heath Primary School Yr6

Design and Technology should inspire and challenge pupils to design and make products that solve real and relevant problems within a variety of contexts. They will draw on other disciplines, take risks and become resourceful, innovative, enterprising and capable citizens through evaluation of past and present technology. They will develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Intent: To build on the National Curriculum by adapting and extending to suit our children. An inspiring and exciting curriculum ensures that Bushey Heath provides a Design Technology curriculum which is as rigorously applied as core.

	Autumn: Shelters - structures	Summer: Fairground – electrical
Knowledge Area of focus	<p>To learn that structures can fail when loaded, and the use of techniques for reinforcing and strengthening structures.</p> <p>Children are shown the strength of tubes as a construction material and textiles as a suitable cover for a framework.</p> <p>The main outcome of this unit will be the design and construction of a framework-type shelter for an identified purpose. This can be a model or full-size structure.</p>	<p>To gain understanding of an important mechanism, using belts and pulleys, and to learn more about control using electricity and an electric motor.</p> <p>Children to be introduced to computer control.</p> <p>To design and make a model of a fairground ride but it could be adapted to suit any product in which an electric motor produces rotating movement.</p>
Skills	<p>To investigate several shelters; have made, used and recognised the use of tubes as a material from which to make a framework.</p> <p>To reinforce and strengthen frameworks using triangulation and carry out a fair test.</p> <p>To include in their designs drawings showing several alternative shelter ideas.</p> <p>To choose to make an appropriate scale or full-size shelter for a specific purpose; have incorporated a framework and a textiles cover.</p>	<p>To become familiar with how an electric motor behaves when connected in an electrical circuit.</p> <p>To generate several ideas to choose from.</p> <p>To harness the rotation produced by the motor to drive a moving part on a model they have made, employing belts and pulleys.</p> <p>To design, make, evaluate and modify their ride and linked it to computer control.</p>
Vocabulary	<p>Modelling, scale model, fair test · making eg rolling, strengthening, reinforcing · knowledge and understanding eg triangulation, diagonal, stable, strength, framework, material, tube, rigid, section, water resistance, tie, strut, beam, bracket, stay, member, horizontal, vertical, gusset - forces eg tension, compression, bending, twisting</p>	<p>Model, mock-up, select, modify, improvements, design proposal, criteria · making eg framework, construct, temporary joins, permanent joins · knowledge and understanding eg rotation, spindle, axle, drive belt, pulley, electric motor, speed, framework, horizontal, vertical, electric circuit, switch, gearing up or down, computer control, mechanism</p>
Concepts	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p>	<p>Children will learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them</p> <p>Children will develop skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food.</p>

	<p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. • A thorough knowledge of which tools, equipment and materials to use to make their products. • The ability to apply mathematical knowledge. • The ability to manage risks exceptionally well to manufacture products safely and hygienically. • A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems. 	<p>Children will be encouraged to be creative and think about important issues</p> <p>Children will learn to use tools and machines that may be used to solve real-world problems.</p> <p>Children will be encouraged to learn</p> <ul style="list-style-type: none"> • Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. • An excellent attitude to learning and independent working. • The ability to use time efficiently and work constructively and productively with others. • The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs. • The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. • A thorough knowledge of which tools, equipment and materials to use to make their products. • The ability to apply mathematical knowledge. • The ability to manage risks exceptionally well to manufacture products safely and hygienically. • A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems.
<p>Week 1 Research</p>	<p>To evaluate the work of others – focusing on past and present technology</p> <p>Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment.</p> <p>Understand how key events and individuals in design technology have helped shape the world.</p>	<p>This is a 12-week project to include:</p> <p>Applying their understanding of computing to program, monitor and control their products. To evaluate the work of others – focusing on past and present technology</p> <p>To use the digital hub to aid the design process</p> <p>Working in a range of relevant contexts – e.g. home/ school/ leisure / culture/ enterprise and then industry and the wider environment.</p> <p>Understand how key events and individuals in design technology have helped shape the world.</p>
<p>Week 2 Research</p>	<p>To research different techniques and skills, practise and apply</p> <p>To 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 group.</p> <p>Explore and evaluate a range of existing products</p>	<p>To research different techniques and skills, practise and apply</p> <p>To 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 group.</p> <p>Explore and evaluate a range of existing products</p>

<p>Week 3</p> <p>Practise and apply</p> <p>Week 4</p> <p>Practise and apply</p>	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>	<p>To develop the creative, technical and practical expertise needed. Build and apply a repertoire of knowledge understanding and skills Design purposeful/ functional products based on design criteria Use: discussion/ annotated sketches/ cross sectional and exploded diagrams/ prototypes/ pattern pieces and computer-aided design</p>
<p>Week 5</p> <p>Make product</p>	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p> <p>Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.</p>	<p>Select from and use wider range of tools and equipment to perform practical tasks e.g. cutting/ shaping/ joining and finishing accurately.</p> <p>Select from and use a wider range of materials and components including construction materials, textiles and ingredients according to their functional properties and their aesthetic qualities.</p>
<p>Week 6</p> <p>Evaluate/ understand</p>	<p>Critique, evaluate and test ideas and products To consider the views of others to improve their work</p>	<p>Critique, evaluate and test ideas and products To consider the views of others to improve their work</p>
<p>Resources</p>	<p>A collection of books/pictures showing different types of shelters including those from other times and cultures · video/collection of photographs of different types of shelters and framework structures · concept boards to show different ways of joining materials · paper straws, square section wood, wooden doweling · paper straws, pipe-cleaners, masking tape, paper fasteners, PVA wood glue · plastic tube to join doweling · plant spray bottle · card, fabric, cotton, plastic sheet eg carrier bags · thread, string, needles · model figure or doll to use for scale</p>	<p>Batteries, motors with small pulleys to fit, elastic bands (up to 20 cm), switches, crocodile connecting leads, aluminium foil · construction kit components including pulleys, pulley wheels · cotton reels · wood scraps which might be used as a base · construction material suitable for making a framework ie wood strips and card corners OR card boxes · doweling or stiff wire for making spindles or axles · variety of materials for making the rides eg card, reclaimed materials · assorted paper, ribbon, string, elastic bands, paper plates, adhesive, sticky tape, saws, drills and bits · tools for cutting and shaping the above materials · computer and interface connection</p>