

Whole School Design and Technology Long Term Plan 2025-2026

Ballifield is a member of the Design and Technology Association



Year Group	Autumn	Spring	Summer
F1	Areas of Development Matters (Birth to 3) covered in provision: <u>Physical Development:</u> • Build independently with a range of appropriate resources • Use large and small motor skills to do things independently • Develop manipulation and control. • Explore different materials and tools. <u>Understanding the World:</u> • Explore materials with different properties. <u>Expressive Arts and Design:</u> • Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. • Use their imagination as they consider what they can do with different materials. • Make simple models which express their ideas.		<i>Working towards for starting in F2:</i> Areas of Development Matters (3-4 year olds) covered in provision: <u>Physical Development:</u> • Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. • Use one-handed tools and equipment, for example, making snips in paper with scissors. <u>Understanding the World:</u> • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Talk about the differences between materials and changes they notice. <u>Expressive Arts and Design:</u> • Explore different materials freely, to develop their ideas about how to use them and what to make. • Join different materials and explore different textures.
F2	Areas of Development Matters (Children in reception) covered in provision: <u>Physical Development:</u> • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Confidently and safely use a range of large and small apparatus indoors and outside, alone and in a group. <u>Expressive Arts and Design</u>	Set DT units, covered in Spring 1 and Spring 2: <u>Spring 1- Food- Fruit Smoothies</u> Investigate and evaluate: • Research what a fruit is and how it is important. Talk about how they can be consumed in different forms. • Fruit tasting and naming Focus Practical tasks: • Practice segmenting, peeling and cutting fruit using playdough	ELGs working towards in provision: <u>Physical Development- Fine Motor:</u> • Use a range of small tools, including scissors, paintbrushes and cutlery. <u>Expressive Arts and Design- Creating with Materials:</u> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

	• Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.	Design: • Design a fruit smoothie with list of fruits to add Make: • Follow a recipe to make the smoothie Evaluate: • Looking at photos of the smoothies, discuss what we liked and what we would change Concepts- Design Make Evaluate <u>Spring 2- Structures- Junk Modelling Castles</u> Investigate and evaluate: • Researching castles and their features through our inventor • Discuss materials used and effectiveness of stability Focus Practical tasks: • Build a castle using wooden building blocks • Practice attachment skills Design: • Design a castle, considering which materials will be used Make: • Make the castle, making in-the-moment iterations during the workshop Evaluate: • Discuss what we liked and what we already changed as part of our iterations Concepts- Design Make Evaluate	• Share their creations, explaining the process they have used.
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Year 1	Structures Freestanding structures Make a bear enclosure or bear playground for Barnaby Bear and his friends. NC: build structures, exploring how they can be made stronger, stiffer and more stable Investigate & evaluate - investigate and evaluate existing playground equipment Focus Practical tasks - Demonstrate measuring, marking out, cutting, shaping, joining and finishing techniques with a range of tools and new and reclaimed materials - Build and explore a variety of freestanding structures using construction kits, - Explore folding and joining techniques Design - Generate some simple design criteria. - Who will your product be for? What will be its purpose? - What materials will be use? How will it be made strong and stable?	Mechanisms Wheels and axles Make an emergency service vehicle, farm vehicle, car vehicle for imaginary/story character NC: Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products Investigate & evaluate - Look at variety of different vehicles and their purposes - See how axles and wheels work by disassembling a vehicle - Investigate whether thin or thick wheels work best on a muddy surface - Explore objects and designs to identify likes and dislikes. - Explore how products have been created. Focus Practical tasks - Name and label parts of a car. - Attach wheels via an axle on a chassis and investigate different ways - Inverting boxes to create a base for our vehicles	Food Preparing fruit (including cooking and nutrition requirements for KS1) Make a fruit kebab NC: use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from. Investigate & evaluate - Understand where food comes from. - Group familiar food products e.g. fruit. - Investigate different snacks - packaging, ingredients, looks etc. - Describe appearance, taste, texture of different food groups Focus Practical tasks - Sample a range of different fruits and evaluate them - Discuss hygiene and devise hygiene poster - Cut ingredients safely. - Prepare simple dishes-safely and hygienically-without using a heat source. - Investigate measuring and weighing of ingredients
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	- Develop ideas through talking, drawing and making mock-ups of their ideas with construction kits and other materials. - Plan the order in which the structures will be made. - Evaluate developing ideas and final products against original design criteria. Make - Plan by suggesting what to do next. - Select and use tools, skills and techniques, explaining their choices. - Select new and reclaimed materials and construction kits to build their structures. - Use simple finishing techniques suitable for the structure they are creating. Evaluate - Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. Concepts - Design - Make - Evaluate	Design - Generate initial ideas and simple design criteria through talking and using own experiences. - Develop and communicate ideas through drawings and mock-ups. Making - Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. - Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. Evaluating - Explore and evaluate a range of products with wheels and axles. - Evaluate their ideas throughout and their products against original criteria. Concepts - Design - Make - Evaluate	Design - Design appealing products for a particular user based on simple design criteria. - Generate initial ideas and design criteria through investigating a variety of fruit. - Communicate these ideas through talk and drawings. Making - Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. - Select from a range of fruit according to their characteristics e.g. colour, texture and taste to create a chosen product. Evaluating - Taste and evaluate a range of fruit to determine the intended user's preferences. - Evaluate ideas and finished products against design criteria, including intended user and purpose. Concepts - Design - Make - Evaluate
Year 2	Mechanisms - Sliders and levers Make a greetings card with a slider or lever mechanism NC: Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. Investigate & evaluate Look at moving picture books with sliders and levers.	Textiles Make a glove puppet NC: apply their understanding of how to strengthen, stiffen and reinforce more complex structures Investigate & evaluate Investigate exiting puppets – hand, glove, finger	Food Make a breakfast snack pot (including cooking and nutrition requirements for KS1) NC: Use the basic principles of a healthy and varied diet to prepare dishes. Investigate & evaluate Research/investigate what nutritious food are and how they help to provide a healthy and varied diet.

	• Research/investigate how they move and the movements they make. • Sliders - different types and how they move. • Levers and pivots and how they create a mechanism. Focus Practical tasks • Practise making different sliders. • Practise making levers and pivots. • Use materials to practise gluing to strengthen products Cut • materials safely using tools provided. • Demonstrate a range of cutting and shaping techniques such • as tearing, cutting, folding and curling. • Use simple mechanisms. Designing • Generate ideas based on simple design criteria their own experiences, explaining what they could make. • Develop, model and communicate their ideas through drawings and mock-ups with card and paper. Making • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating. Evaluating • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria	Focus Practical tasks • Investigate a variety of different bags, looking at the nets and panels that go together to create different shapes. Why do we use bags? • Try out a variety of different stitching techniques. • Investigate the pros and cons of different fabrics for different purposes before selecting fabric for their project • investigate and select an appropriate fastening • device/technique for their project • Different fastening methods • Measure and mark out to the nearest mm. Designing • Design a functional and appealing product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology. Making • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. Explore and evaluate a range of existing textile products relevant to the project being undertaken. Evaluating	• Look at a selection of foods, fruits and vegetables. • Find out where they originate from and how they are used within cooking. Focus Practical tasks • Children to look closely at a variety of different fruits, cereals and yoghurts. • Use their senses to describe the different features of the fruits, cereals and yoghurts as well as their sense of taste. • Discuss safety and hygiene in relation to food. • Practice using different tools for cutting and chopping safely, and using the appropriate language associated with food preparation. • Cut, grate or peel ingredients safely. • Measure or weigh using cups or electronic scales. • Investigating a variety of fruits, cereals and yoghurts. • Communicate these ideas through talk and drawings. Designing • Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through investigating a variety of fruits, cereals and yoghurts. • Communicate these ideas through talk and drawings. Making • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruits, cereals and yoghurts according to their characteristics e.g. colour, texture and taste to create a chosen product.
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	Concepts • Design • Make • Evaluate	• Evaluate their ideas throughout and their final product against original design criteria. Concepts • Design • Make • Evaluate	Evaluating • Taste and evaluate a range of fruits, cereals and yoghurts to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. Concepts • Design • Make • Evaluate
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Year 3	Structures - Shell Structures Make a box/holder for a Stone Age person to keep snacks/jewellery NC: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Investigate & evaluate • Investigate structures and how they are made stable.	Food Healthy and varied diet (including cooking and nutrition requirements for KS2) To design and make a European food dish (Pizza) NC: Understand and apply the principles of a healthy and varied diet. Investigate & evaluate	TEXTILES: 2-D shape to 3-D product Make a pencil case NC: apply their understanding of how to strengthen, stiffen and reinforce more complex structures Investigate & evaluate • Variety of fabric pencil cases.
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	- Look at different examples of tribal houses and discuss their similarities/differences. Focus Practical tasks - Explore a range of materials and make decisions based on the requirements of the end product.	- Children investigate a range of food products e.g. the content of their lunchboxes , a selection of foods provided for them - Link to the principles of a varied and healthy diet using the eat well plate e.g. What ingredients have been used? - Which food groups do they belong to?	- Investigate panels/nets used to create different shapes. - Improve on existing designs, giving reasons for choices. - Identify some of the great designers in different areas of study to generate ideas from their designs Focussed practical tasks
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- Explore the properties of different materials and think about which ones are suitable for each section of their roof/stable structure. - Think about strength, stability, malleability and other features in this exploration lesson. - Explore how materials can be made stronger and stiffer. - Think of and describe ways of strengthening paper and card, then experiment with strengthening and joining paper and card in order to further develop their ideas. - Investigate if different materials are better to catch the wind and rain than others? Designing - Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. - Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. Making - Order the main stages of making.	- What substances are used in the products e.g. nutrients, water and fibre? Focus Practical tasks - Cutting and slicing different food stuff - Tasting different food stuff - Investigating a healthy diet - that a healthy diet is made up from a variety of different food and drink, as depicted in The Eat well Plate. - Measure and weigh ingredients appropriately. Follow a recipe. - Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, chopping, grating, slicing etc.) - Children will measure, mark out and assemble components with more accuracy. Designing - Generate realistic ideas and design criteria collaboratively through discussion,	- Investigate a variety of different fabric pencil cases, looking at the nets and panels that go together to create different shapes. - Why do we use pencil cases? - Try out a variety of different stitching techniques. - Investigate the pros and cons of different fabrics for different purposes before selecting fabric for their project - investigate and select an appropriate fastening device/technique for their project - Different fastening methods - Measure and mark out to the nearest mm. Designing - Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. - Produce annotated sketches, prototypes, final product sketches and pattern pieces. Making - Plan the main stages of making.
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• Select and use appropriate tools to measure, mark out, cut, score, and shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating. Evaluating • Investigate and evaluate a range of existing shell Structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. <u>Concepts</u> Design Make Evaluate	focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. Making • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, and shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating. Evaluating • Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. <u>Concepts</u> Design Make Evaluate	• Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. Evaluating • Investigate a range of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user. • Take into account others' views. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. <u>Concepts</u> Design Make Evaluate
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	Mechanical Systems Levers and linkages Design and Make a Christmas greetings card product containing a lever and linkage mechanism	Electrical Systems Simple circuits and switches Design and make a torch Linked with Science /Electricity unit	Food Healthy and varied diet (including cooking and nutrition requirements for KS2) Design and make a Greek salad
Year 4	NC: Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] Investigate & evaluate - Investigate a variety of familiar objects that use a lever or linkage mechanism to make them work - Think of objects that use a lever/linkage to make them work, - Examine, sketch, label and/or describe a variety of these kinds of objects. Focus Practical tasks: - Demonstrate a range of lever and linkage mechanisms to the children using prepared teaching aids. - Use questions to develop children's understanding e.g. <i>Which card strip is the lever? Which card strip is acting as the linkage? Which part of the system is the input and which part the output? What does the type of movement remind you of? Which are the fixed pivots and which are the loose pivots?</i> - Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. Designing	NC: understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] Investigate & evaluate - Look at a variety of light up equipment. How does it work? - Investigate torches. Disassemble one to look at its component - parts - Discuss purposes of lights and investigate different types/styles of lights/torches Focus Practical tasks: - Recap with the children how to make manually controlled, simple series circuits with batteries and different types of switches, bulbs and buzzers. Discuss which of the components in the circuit are input devices e.g. switches, and which are output devices e.g. bulbs and buzzers. - Demonstrate how to find a fault in a simple circuit and correct it, giving pupils opportunities to practise. - Look at and identify scientific representation of circuit - components - Make a simple switch using metal components	NC: Understand and apply the principles of a healthy and varied diet. Investigate & evaluate - Explore and evaluate a range of existing products in the context of comparing different salads to understand where foods come from. - Use the basic principles of a healthy and varied diet in the context of comparing different ingredients in salads, linking to food groups. Focus Practical tasks - Cutting and slicing different food stuff - Tasting different food stuff - Investigating a healthy diet - that a healthy diet is made up from a variety of different food and drink, as depicted in The Eat well Plate. - Measure and weigh ingredients appropriately. - Follow a recipe. - Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, chopping, grating, slicing etc.) - Children will measure, mark out and assemble components with more accuracy. Designing

	• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. Making • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating. Evaluating Test and evaluate their own products against design criteria and the intended user and purpose. <u>Concepts</u> Design Make Evaluate	Designing • Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Making • Order the main stages of making. • Select from and use tools and equipment to cut, shape, join and finish with some accuracy. • Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. Evaluating Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. <u>Concepts</u> Design Make Evaluate	• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. Making • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, and shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating. Evaluating Test and evaluate their own products against design criteria and the intended user and purpose <u>Concepts</u> Design Make Evaluate
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Year 5	Electrical Systems More complex switches and circuits (including programming, monitoring and control) Make an alarm for a money box NC: 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. Investigate & evaluate - Investigate and evaluate range of BATTERY POWERED products that respond to changes in the environment - Investigate and evaluate range of ALARM SYSTEMS - Look at a variety of light up equipment. How does it work? - Discuss purposes of lights Focus practical tasks - Practise measuring, marking out, cutting and joining skills with construction materials that children will need to create their electrical products. - Demonstrate and enable children to practise methods for making secure electrical connections e.g. using automatic wire strippers, twist and tape electrical connections, screw connections and connecting blocks. - explore a range of electrical systems that could be used to control their products, including a simple series circuit where a single output device is controlled, a series circuit where two output devices are controlled by one switch and, where	Structures Frame structures To make a desk tidy NC: apply their understanding of how to strengthen, stiffen and reinforce more complex structures Investigate & evaluate - investigate and evaluate existing [portable and permanent frame structures Focus practical tasks - Demonstrate how paper tubes can be made from rolling sheets of newspaper diagonally around pieces of e.g. dowel. Use these tubes and masking tape or paper straws with pipe cleaners to build 3-D frameworks such as cubes, cuboids and pyramids. - Demonstrate the accurate use of tools and equipment. - Develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate. - Join framework materials together e.g. paper straws, square sectioned wood. Designing - Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. - Develop ideas through the analysis of existing products and use annotated	Food Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) Preparing a variety of food from other cultures NC: 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. Investigate & evaluate - Explore and evaluate a range of existing products in the context of comparing different foods to understand where they come from. - Use the basic principles of a healthy and varied diet in the context of comparing different ingredients in different foods - Classify and group foodstuff - Analyse appearance, smell, taste, texture, how grown, how produced, how eaten. (Trip to ASDA, Handsworth – look at different pizza’s available – which ones do they recognise? Which country are the pizza’s influenced by?) Focus Practical tasks - Cutting and slicing different food stuff - Tasting different foods- ingredients for pizza toppings - Investigating a healthy diet - that a healthy diet is made up from a variety of different
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	appropriate, parallel circuits where two output devices are controlled independently by two separate switches. Teach children how to avoid making short circuits.	sketches and prototypes to model and communicate ideas. Making Order the main stages of making.	food and drink, as depicted in The Eat well Plate. - Measure and weigh ingredients appropriately. - Follow a recipe. - Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, chopping, grating, slicing etc.) - Combine food from different food groups to create healthy products Designing - Design a pizza from a different culture
	Designing - Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. - Generate and develop innovative ideas and share and clarify these through discussion. - Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. Making - Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. - Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.	. Select and use appropriate tools to measure, mark out, cut, score, and shape and assemble with some accuracy. - Explain their choice of materials according to functional properties and aesthetic qualities. - Use finishing techniques suitable for the product they are creating. Evaluating - Test and evaluate their own products against design criteria and the intended user and purpose. <u>Concepts</u> Design Make Evaluate	- Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. - Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. - Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. - Design own pizza boxes Making - Write a step-by-step recipe, including a list of ingredients, equipment and utensils – make own dough for pizza base - Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. - Make, decorate and present the food product appropriately for the intended user and purpose.

	- Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. Evaluating - Continually evaluate and modify the working features of the product to match the initial design specification. - Test the system to demonstrate its effectiveness for the intended user and purpose. - Investigate famous inventors who developed ground-breaking electrical systems and components. <u>Concepts</u> Design Make Evaluate		Evaluating - Evaluate the final product with reference back to the design brief and design specification, considering the views of others when identifying improvements. - Understand how key chefs have influenced eating habits to promote varied and healthy diets. <u>Concepts</u> Design Make Evaluate
Year 6	Food Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) Design, make and evaluate a fruit crumble NC: 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. Investigate & evaluate	Mechanical Systems Pulleys or gears Design and make controllable toy vehicle with gears or pulleys e.g. dragster off-road vehicle, sports car NC: Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] Investigate & evaluate Investigate, analyse and evaluate existing everyday products and existing or pre-made toys that incorporate gear or pulley systems.	Textiles Combining different fabric shapes Make a bag with a small pocket with zip fastening NC: apply their understanding of how to strengthen, stiffen and reinforce more complex structures Investigate & evaluate - Children investigate, analyse and evaluate a range of existing products which have been produced by combining fabric shapes. - Investigate work by designers and their impact on fabrics and products. - Children investigate and analyse how existing products have been constructed.

	• Explore and evaluate a range of existing products in the context of comparing different crumbles to understand where foods come from. • Use the basic principles of a healthy and varied diet in the context of comparing different ingredients crumbles • Classify and group foodstuff • Analyse appearance, smell, taste, texture, how grown, how produced, how eaten. Focus practical tasks • Cutting and slicing different food stuff • Tasting different food stuff • Investigating a healthy diet - that a healthy diet is made up from a variety of different food and drink, as depicted in The Eat well Plate. • Measure and weigh ingredients appropriately. • Follow a recipe. • Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, chopping, grating, slicing etc.) • Combine food from different food groups to create healthy products Designing • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and	• Use videos and photographs of products that cannot be explored through first-hand experience. • Use observational drawings and questions to develop understanding of products • Children research and, if possible, visit engineering and manufacturing companies that are relevant to the product they are designing and making e.g. Jaguar Land Rover, JCB, local companies Focus practical tasks • Using a construction kit, investigate combinations of two different sized pulleys to learn about direction and speed of rotation e.g. ? AND/OR • Explore combinations of two different size gears meshed together. • Investigate the direction and speed of rotation focusing on how the size of the driver gear affects the speed of the follower gear. • Ask the children to use the number of teeth on each gear to decide upon the gear ratios e.g. • Build a working circuit that incorporates a battery, a motor and a handmade switch, such as a reversing switch. • Remind children about the dangers of mains electricity. • Draw a pictorial representation of the circuit or draw a circuit diagram using correct symbols. • Develop measuring, marking, cutting, shaping and joining skills using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills	• Children disassemble a product and evaluate what the fabric shapes look like, how the parts have been joined, how the product has been strengthened and stiffened, what fastenings have been used and why. • Children investigate properties of textiles through investigation e.g. exploring insulating properties, water resistance, wear and strength of textiles. Focus practical tasks • Develop skills of threading needles and joining textiles using a range of stitches. Develop skills of sewing textiles by joining right side together and making seams. • Children should investigate how to sew and shape curved edges by snipping seams, how to tack or attach wadding or stiffening and learn how to start and finish off a row of stitches. • Develop skills of 2-D paper pattern making using grid or tracing paper to create a 3-D dipryl mock-up of a chosen product. Remind/teach how to pin a pattern on to fabric. • Develop skills of computer-aided design (CAD) by using on-line pattern making software to generate pattern pieces. Investigate using art packages on the computer to design prints that can be applied to textiles using iron transfer paper. Designing • Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups
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	communication technology as appropriate to develop and communicate ideas. Making • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose. Evaluating Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote varied and healthy diets. <u>Concepts</u> Design Make Evaluate •	to construct wooden frames, as appropriate. • Demonstrate the accurate use of tools and equipment. Designing • Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. Making • Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Use finishing and decorative techniques suitable for the product they are designing and making. Evaluating • Investigate and evaluate a range of existing frame structures. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.	and prototypes and, where appropriate, computer-aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. Making • Produce detailed lists of equipment and fabrics relevant to their tasks. • Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. Evaluating • Evaluate the final product with reference back to the design brief and design specification • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. <u>Concepts</u> Design Make Evaluate
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