



Area	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Structures	<p>FS: <u>Nursery Baseline:</u> Make simple models.</p> <p><u>Nursery Spring 2:</u> Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. <i>Begin to use the construction toys to make settings e.g. small wooden blocks to make a farm, Duplo to make a castle</i></p> <p><u>Nursery End / Reception Baseline:</u> <i>Begin to explain how they have made their model.</i></p> <p><u>Reception Spring 2:</u> Create collaboratively, sharing ideas, resources and skills. <i>Explain how they have made a model and what it's purpose it</i></p> <p><u>ELG – Creating with Materials:</u> - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used; - Make use of props and materials when role playing characters in narratives and stories.</p> <p>We will do this by: -Building our own house from small bricks. -Working collaboratively to build a house from large blocks. -Build a box model boat and/or rocket. -Build a bridge for the Three Billy Goats Gruff</p> <p>Continuous Provision: Construction carpet Builder's shed Sand Creative Corner Den Building Zone</p>	<p>FREE STANDING STRUCTURES</p> <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> Know how to make a design stronger, stiffer and more stable using iterative design process by knowing ways to strengthen/provide stability are: <ul style="list-style-type: none"> layering/folding paper to create simple structures; choosing card over paper knowing wider base and 'buttress' makes structure more stable Joins can be strengthened with masking tape Adding a 'buttress' for stability Know what a freestanding structure is Yr 2 can give examples (e.g chairs, bridges, monuments. See Knowledge organiser) <ul style="list-style-type: none"> Look at and evaluate existing structures <p>DESIGN</p> <ul style="list-style-type: none"> Use own ideas/experiences (Yr2 - and the ideas/experiences of others) to generate unique ideas for a product, purpose and person. e.g useful structure linked to a book/character e.g <i>strong chair for Baby Bear</i> Explain how they want to make their product and create a simple success criteria Yr2 – Develop ideas through discussion, observation, drawing and modelling and make a simple plan of what to do to make the product <p>MAKE</p> <ul style="list-style-type: none"> Choose appropriate resources and tools (Yr2 use specific vocabulary to name them) Explain why tools and materials have been chosen Mark and measure materials to use in a model or structure with help (Yr2 with developing accuracy and precision) Join materials and components in different ways (masking tape, glue, folding) <p>EVALUATE</p> <ul style="list-style-type: none"> Discuss how closely their finished products meets their design success criteria (Yr2 identify likes, dislikes, strengths and possible changes) 	<p>SHELL STRUCTURES</p> <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> Know the definition of and characteristics of a shell structure Know the purpose and examples of frame/shell structures (See Knowledge Organiser) Know that a rounded/curved structure is especially strong as it spread force throughout the whole structure Know that Shell structures can be stiffened through folding, layering, corrugating, ribbing or lamination <p>DESIGN</p> <ul style="list-style-type: none"> Gather information about the needs/wants of individuals/groups. Use this to inform ideas (Yr 4 at least 2 designs) and develop on success criteria Develop unique realistic designs based on needs and purpose of the user, adding notes to sketches to explain how to make it (Yr4 plans show different views showing specific features) Use Computer Aided Design (CAD) to develop and communicate their design (<i>use of Educational Minecraft for this in Computing</i>) Create a labelled and follow a step-by-step plan, choosing the right equipment and materials (record in sketches/writing (Yr4 suggest alternative methods if first attempts fail)) <p>MAKE</p> <ul style="list-style-type: none"> Work with increased accuracy from KS1 to measure, make cuts and make holes (Yr4 with increased accuracy and precision) Prototype shell structures and choose materials for both its suitability and its appearance based on an iterative design process (prototype, test, analyse, refine – when/how/where did it go well/fail?) <p>EVALUATE</p> <ul style="list-style-type: none"> Prove and evaluate their product (Yr4 to evaluate during and after process, including material evaluation) against original design and success criteria (how successful/unsuccessful, how well it meets its intended purpose and how to improve) Understand how design and technology has helped and developed the world Famous places: St Peter's Basilica; sweet and food packaging (see KO) 	<p>FRAME STRUCTURES</p> <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> Know definition of, purpose and example of frame structures Know frame structure are built for a purpose e.g to support or hold something Know frame structures have joints and system of beams and columns that can be strengthened using other features e.g diagonal bracing, wide base, triangulation (<i>Also, see prior learning previously for strengthening processes</i>) Know about key individual WB Wilkinson who invented reinforced concrete (link to product strengthening and stiffening and buildings of the world) Know individuals who have developed ground-breaking structures e.g Stephen Silvestre and Gustave Eiffel – architect and engineer of Eiffel Tower; famous bridges and their impact; WB Wilkinson who invented reinforced concrete (link to product strengthening and stiffening and buildings of the world) <p>DESIGN</p> <ul style="list-style-type: none"> Offer a range of unique ideas for a specific purpose (character/aim) after collecting information from different sources, including market research which informs plans, ideas and decisions Outline positive design features and draw-backs Yr6 to develop a design specification Explain how a product will appeal to a specific audience and purpose. Create success criteria to ensure quality, purpose and aim Develop a design producing a detailed, step-by-step plan which justifies in a convincing way (cross section plan, exploded diagrams etc) Use Computer Aided Design (CAD) to develop and communicate their design (<i>use of Educational Minecraft for this in Computing</i>) <p>MAKE</p> <ul style="list-style-type: none"> Make prototypes before making a final version as part of iterative design process (cyclical process of prototype, test, analyse, refine, asking questions such as when did it fail, where did it fail, how, why...when considering final design) Use knowledge to improve a product by strengthening, stiffening or reinforcing (diagonal bracing, wide base, triangulation, bracing) Follow and refine original plans, demonstrating resourcefulness when tackling problems <p>EVALUATE</p> <ul style="list-style-type: none"> Critically evaluate the quality of the design, appearance, and fitness/function for purpose and sustainability of their products as they design and make Yr6 Evaluate against design spec plus manufacture, innovation, impact beyond intended purpose <p>Additional notes: <i>Glue gun to be used with close supervision. Use a craft knife, cutting mat and safety ruler under close supervision if appropriate</i></p>			

<p style="text-align: center;">MECHANISMS</p> <p><u>Nursery Baseline:</u> Interested in finding out how things work. <u>Nursery Autumn 2:</u> Explore how things work.</p> <p><u>Nursery Spring 2:</u> Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary.</p> <p><u>Nursery End/Reception Baseline:</u> Explore and talk about different forces they can feel.</p> <p><u>Reception Autumn 2:</u> <i>Make predictions and talk about observations.</i></p> <p><u>Reception Spring 2:</u> <i>Make their own scientific investigations, predictions and observations.</i></p> <p>We will do this by: -Learning how to use different joining tools such as stapler and hole punch and knowing when to use which one whilst making box models such as a train with spinning wheels linked with The Train Ride story. -Being encouraged to Plan>Do>Review</p> <p><u>Continuous Provision:</u> Box modelling Cars and ramps Riding bikes Cogs construction Mobilo</p>	<p style="text-align: center;">SLIDERS AND LEVERS</p> <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> ➤ Explore and use sliders and levers ➤ Know that mechanism are the parts that make something works Yr2 Name some example mechanisms ➤ Understand that different mechanisms produce different types of movement (<i>sliders – side to side/up, down; Levers – use a fulcrum for lever to move things in an arc (curve)</i>) ➤ Know and use technical vocabulary relevant to the project. <p>DESIGN</p> <p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make <i>Design, make and evaluate a _____ (product) for _____ (user) for _____ (purpose).</i></p> <ul style="list-style-type: none"> ➤ Develop, model and communicate their ideas through drawings and mock-ups with card and paper <p>MAKE</p> <ul style="list-style-type: none"> ➤ 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 <p>EVALUATE</p> <ul style="list-style-type: none"> ➤ 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. (Yr2 identify likes, dislikes, strengths and possible changes) 	<p style="text-align: center;">LEVERS AND LINKAGES</p> <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> ○ Understand and use lever and linkage mechanisms Yr 4 to give examples ○ Distinguish between fixed and loose pivots Yr 4 to explain difference ○ Know and use technical vocabulary relevant to the project – oscillating, linear, rotary, reciprocating <p>DESIGN</p> <ul style="list-style-type: none"> ○ Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. ○ Use annotated sketches and prototypes to develop, model and communicate ideas <p>MAKE</p> <ul style="list-style-type: none"> ○ Order the main stages of making. ○ Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. ○ Select from and use finishing techniques suitable for the product they are creating <p>EVALUATE</p> <ul style="list-style-type: none"> ○ Investigate and analyse books and, where available, other products with lever and linkage mechanisms. ○ Evaluate their own products and ideas against criteria and user needs, as they design and make Yr 4 taking into accounts other’s opinions ○ Investigate inventions based on levers and linkages and how these have changed the world 	<p style="text-align: center;">PULLEYS AND GEARS</p> <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know and can define a gear, drive belt and pulley (see KO) • Can explain simply how gears, drive belts and pulleys work (see KO) • Know example mechanisms that use gears and pulleys • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project Designing • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. <p>Making</p> <ul style="list-style-type: none"> • Produce detailed lists of tools, equipment and materials. Formulate step-bystep plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Yr 6 with increasing accuracy and precision Work within the constraints of time, resources and cost. <p>Evaluating</p> <ul style="list-style-type: none"> • 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 Yr 6 innovation and sustainability • Consider the views of others to improve their work. • Investigate inventors and inventions and their impact on the world: William Kamkwamba from Malawi – set up windmill during famine and drought. Got water pumping from a well which led to irrigation from crops. Dropped out of school. Used pictures from library books to help. Demonstration of 5Rs and resilience.
	<p style="text-align: center;">WHEELS AND AXLES</p> <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> ○ Know what a mechanism is and can give examples (See Knowledge Organiser) ○ Know what the mechanisms of wheels, axis and chassis are, look like and how they work Yr 2 to apply understanding to every day example – roller skates, ferris wheel <p>DESIGN</p> <ul style="list-style-type: none"> ○ Explore and evaluate everyday mechanisms using wheels and axles to generate ideas and questions ○ Use own ideas (Yr2 and the ideas/experiences of others) to design something that moves for a unique purpose (e.g fit for a book character/famous person) ○ Yr 2 Know what fixed and free wheels are in their design process ○ Create and refer back to a simple success criteria linked to project purpose and design ○ Describe how their own idea works and how they want to make the product ○ Yr2 – Develop ideas through discussion, observation, drawing and modelling and make a simple plan of what to do to make the product <p>MAKE</p> <ul style="list-style-type: none"> ○ and use mechanisms of wheels and axles in their products (using materials such as tubes, dowel, cotton reels for the axles and chasse etc) ○ Mark and measure materials to use in a model or structure with help (Yr2 with developing accuracy) 		

		<ul style="list-style-type: none"> Choose appropriate resources and tools (Yr2 use specific vocabulary to name them) Join materials and components in different ways EVALUATE Talk about changes made during the making process Discuss how closely their finished products meets their design success criteria (Yr2 identify likes, dislikes, strengths and possible changes) 		
Textiles	<p>Nursery Spring 2: Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. <i>Be able to grasp ribbon to weave through mesh. (PD)</i></p> <p>Reception Spring 2: <i>Be able to grasp ribbon to weave through mesh using an in and out action.(PD)</i></p> <p>We will do this by: -Weaving on the large mesh outside to create a tapestry of blue fabrics representing the sea / sparkly fabrics to create a celebratory piece.</p>	<p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> Know what textiles are and some examples e.g blankets, clothes Know what running stitch looks like, how to use it and when it is used (quickest stitch to use) Know what a template is for Know different ways to join fabrics together (gluing, stapling, taping, sewing) Yr2 know some joins are quicker (stapling, safety pinning), some are more secure (sewing, gluing) and some easier to hide. <p>DESIGN</p> <ul style="list-style-type: none"> Use own ideas (Yr2 and the ideas/experiences of others) to design something for a unique purpose/character and to solve a problem Create a simple success criteria linked to finished product quality and purpose Make a simple plan of what to do to make the product 	<p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> Know what textiles are and examples Know what and why aesthetics is important in textiles Know that materials have different properties (soft, thin, lightweight) Know that Charles Mackintosh invented a way of creating waterproof fabric, why this is important in life and why it helps us today Know what running stitch, back-stitch and over stitch looks like, how to do it and why they are used (<i>running – quick, back – for strength, over – combine</i>) Know about key inventions and inventors and their impact: Edmund Cartwright- British invented the power loom powered by water to speed weaving manufacturing process and its impact since History of the needle – first needles were made from bone! Know that Charles Mackintosh invented a way of creating waterproof fabric and Marion Donovan (waterproof nappies) why this is important in life and why it helps us today 	<p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> Know that features are added to improve products functionality e.g fasteners, clasps, ties, toggles, zips, studs, Velcro etc. Know materials are chosen for their properties e.g polyester (resilient, holds colour well) and leather, cotton, polyester (strong to bear contents etc) eco-friendly (organic cotton, linen) Know about key people and inventions and their impact on the world of textiles: <p>Ruben Rual – (BAME USA) designed for Beyonce and Michelle Obama. Flamboyant, African designs. Started business on Etsy! Notion of new business is only a click away! His grandma was his influence</p> <p>The Two Blind Brothers – Bradford and Bryan Manning USA both been diagnosed with same degenerative eye disease. Established own clothing company. ‘Feeling’ their way around clothes shops. Employ 70% employees visually impaired people. Profits go to preventing and curing blindness – illustration of 5Rs and catholicity. ‘Nobody knows fit and feel like a blind guy!’ is their comical strapline.</p>
	<p><u>Continuous Provision:</u></p> <p>Weaving a variety of materials through mesh. Using a hole punch and joining card using treasury tags or threading string or wool through the holes on the edge of a card to create a border. A wide range of activities to promote fine motor control eg playdough, pegs, lego, painting.</p>	<p>MAKE</p> <ul style="list-style-type: none"> Cut out shapes created by drawing around a template onto a fabric with help Join materials and components in different ways (using running stitch using large eye needles, glue, staples, over-sewing, tape) Yr2 – with increased accuracy and precision. Decorate fabrics with buttons, beads, sequins and ribbons for collage effect using simple applique <p>EVALUATE</p> <ul style="list-style-type: none"> Say what they like about items made and why. Discuss how closely their finished products meets their design success criteria (Yr2 identify likes, dislikes, strengths and possible changes) 	<p>DESIGN</p> <ul style="list-style-type: none"> Design (Yr 4 at least 2 designs) and create a textile based product for a specific purpose and with specific success criteria linked to this purpose Create a labelled and follow a step-by-step plan, choosing the right equipment and materials (record in sketches/writing (Yr 4 suggest alternative methods if first attempts fail) <p>MAKE</p> <ul style="list-style-type: none"> Join fabrics using running stitch, back-stitch and over-stitch, choosing correct stitch appropriately (Yr4 with increased accuracy and precision) Yr 4 Explore fastenings and recreate some (e.g buttons, loops) Use appropriate decoration techniques e.g applique (glued or simple stitches) <p>EVALUATE</p> <ul style="list-style-type: none"> Test, prove and evaluate their product (Yr4 to evaluate during and after process, including material evaluation) against original design and success criteria (how successful/unsuccessful, how well it meets it intended purpose) & how to improve 	<p>DESIGN</p> <ul style="list-style-type: none"> Offer a range of ideas after collecting information from different sources Design and create a unique 3D textiles product for a specific purpose and user and product in mind (what should it do? Who will use it?) using pattern pieces and seam allowances Create success criteria and design specification linked to quality, purpose and aim <p>MAKE</p> <ul style="list-style-type: none"> Decorate textiles appropriately often before joining components Join fabrics using stitches used in previous years (running, back, over stitch) plus blanket stitch or machine stitching Yr6 with increased accuracy and precision Know when and why to each of the stitches above (<i>running – quick, back – strength, over-stitch – to combine, blanket 0 for aesthetics</i>) Develop experience embellishing work (buttons, fastenings, decorations, applique) <p>EVALUATE</p> <ul style="list-style-type: none"> Critically evaluate the quality of the design, appearance, and fitness/function for purpose and sustainability of their products as they design and make Yr6 Evaluate against design spec plus manufacture, innovation, impact beyond intended purpose

Electrical Systems

SIMPLE CIRCUITS AND SWITCHES

TECHNICAL KNOWLEDGE

- Know how to use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.
- Know and use technical vocabulary relevant

DESIGN

- 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.

MAKE

- Order the main stages of making.
- Select from and use tools and equipment to cut, shape, join and finish with some accuracy **Yr 4 developing accuracy**
- Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.

EVALUATE

- Investigate and analyse a range of existing battery-powered products.
- Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work **Yr 4 during making process**
- Know key inventors and its impact on the world:
 - Thomas Edison** – inventor of the light bulb
 - Reichard Turere** – put in charge of fathers cows. Created own system to scare lions away. Finally settled on lion lights! Youngest person in Kenya to have a patent. TED talk on his invention. No trouble with lions killing livestock any more. Big steps forward in lion conversation.

COMPLEX SWITCHES

TECHNICAL KNOWLEDGE

- Understand and use electrical systems in their products.
- Know variety of different switches (latching, reed, push to make, push to break, tilt, toggle, Light dependent resistor)
- Apply their understanding of computing to program, monitor and control their products.
- Know and use technical vocabulary relevant to the project.

DESIGN

- 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.

MAKE

- 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
- Write simple control programme using flow char 'control language' (see KO)

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: **John Henry Holmes** – British, invented the switch; **Garrett Morgan** (African American inventor) invented the traffic light after witnessing a car crash.

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Computer Aided-Design & Programming</p>	<p>Nursery Spring 2: <i>Make marks on Prowise on the Interactive Whiteboard. Be able to program a Beebot to move forward.</i></p> <p>Nursery End / Reception <i>Baseline: Be able to navigate a simple game on the Interactive Whiteboard.</i></p> <p>Reception Spring 2: <i>Be able to draw a picture on the Interactive Whiteboard, choosing icons purposefully to change colours, shapes and pens. Be able to program a Beebot to move forwards and backwards to a given place.</i></p> <p>We will do this by: -Creating individual or collaborative pictures on the IWB. -Using games on Phonics Play or TopMarks to develop maths or literacy learning. -Ensuring children know how to use an I-pad to take photographs or videos of their shows or favourite places. - Ensuring children know how to program a Beebot to move along a map or to a given place.</p>	<p>Year 1 (Classroom based)</p> <ul style="list-style-type: none"> ○ Make a product which moves ○ Join components in different ways ○ Choose appropriate resources ○ Talk about their designs as they develop and identify good and bad points ○ Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products (using materials such as tubes, dowel, cotton reels etc for axles and chasses) <p>Year 2: D&T using IT (WEDO 2 - Within Computing Time)</p> <ul style="list-style-type: none"> ○ Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. ○ Make a product which moves ○ Join components in different ways ○ Choose appropriate resources ○ Talk about their designs as they develop and identify good, bad points and suggest points to change 	<p>Year 3 – Flood Gate Project</p> <ul style="list-style-type: none"> ○ Follow a step-by-step plan, choosing the right components ○ Make a product which uses both electrical and mechanical components ○ Use and apply understanding of computing to program, monitor and control products ○ Make a product which uses both and electrical control and mechanical components/systems (levers) ○ Develop and modify model ideas through discussion and computeraided design <p>Year 4 - Lion/Sphinx project <i>Yr 4 difficulty increases with multiple steps and two combined mechanisms</i></p> <ul style="list-style-type: none"> ○ Follow a step-by-step plan, choosing the right components ○ Make a product which uses both electrical and mechanical components ○ Use and apply understanding of computing to program, monitor and control products ○ Make a product which uses both and electrical control and mechanical components/systems (gears and pulleys) ○ Develop and modify model ideas through discussion and computer aided design 	<p>Projects: Year 5 WeDo 2 Moon base/Crocodile. Year 6 WeDo 2 Volcano Alert/Crocodile <i>Yr 6 complexity increases with multiple steps and combined mechanisms</i></p> <ul style="list-style-type: none"> ○ Use a more complex IT program to help enhance the quality of the product produced ○ Use research and develop design criteria to inform the design of innovative and functional, appealing products that are fit for purpose, aimed at individuals or groups ○ Evaluate their ideas and products against own design criteria and consider the views of others to improve work ○ Understand and use mechanical systems in their products (e.g gears, pulleys, linkages, cam) ○ Apply and use their understanding of computing to program ,monitor and control their products ○ Use computational thinking and programming to adapt product movement
	<p>Continuous Provision: Tills in role play shop Microwave or kettle in role play house Computer Keyboard in role play builder's shed Cameras in discovery box Phones in all role play areas CD player on stage Beebots with bricks</p>			

<p style="text-align: center;">Food and Nutrition</p>	<p><u>Nursery Autumn 2 (PSED/UW):</u> <i>Able to help themselves to snack – following the routine with support</i> <i>Become aware that healthy eating, exercise and sleeping are important for a healthy body.</i> <i>Try foods linked to different festivals.</i></p> <p><u>Spring 2 (PSED)</u> <i>Able to help themselves to snack – following the routine</i></p> <p><u>Nursery End / Reception</u> <u>Baseline:</u> <i>Be able to name one thing that keeps them healthy.</i></p> <p><u>Reception Autumn 2:</u> Know and talk about the different factors that support their overall health and wellbeing: - healthy eating - - toothbrushing - having a good sleep routine.</p> <p><i>Able to feed themselves with a fork and spoon.</i></p> <p><u>ELG – End of Reception</u> <u>Managing Self</u> Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.</p> <p>We will do this by: -Baking linked to topic eg Christmas biscuits or porridge when reading Goldilocks. - Including food tasting when learning about other faiths or cultures eg trying poppadums and dips during Diwali or challah bread during Hanukkah. -Making playdough regularly and offering the experience to all.</p>	<ul style="list-style-type: none"> ○ TECHNICAL KNOWLEDGE/FOOD TECHNOLOGY ○ Know the 5 main food groups (Yr2 Name examples) Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>The Eatwell Guide</i>. ○ Know preparing (mixing, weighing, measuring) and cooking processes (baking, grilling) Understand that food comes from plants and animals – ‘grow, catch or raise it.’ Yr2 – name where specific key food items come from e.g cocoa – Columbia, herbs/spices – India etc ○ DESIGN Use own ideas to make something unique for a specific purpose (character/purpose/specific aim) ○ Create a simple success criteria based on design and purpose Explain to someone else how they want to make their product Yr2 – Make a simple plan of what to do to make the product ○ MAKE ○ Cut, peel, grate and chop ingredients safely with help Yr 2 with accuracy, safety and increased precision and independence ○ Measure and weigh ingredients to use in a recipe with help Yr 2 with increased precision and independence Develop a food vocabulary - taste, texture, smell and feel ○ EVALUATE ○ Explain what works well and not so well in the model they have made Discuss how closely their finished products meets their design success criteria (Yr2 identify likes, dislikes, strengths and possible changes) 	<ul style="list-style-type: none"> ○ TECHNICAL KNOWLEDGE/FOOD TECHNOLOGY Know the preparing processes of slicing, mixing, weighing, measuring, grating, serving and the cooking processes of baking, boiling, frying, grilling ○ Know the food groups, examples of each and suggested amounts to eat ○ Make healthy choices for designs from an understanding of a balanced diet Know what food sources are and where these come from (caught, grown, raised, processed) ○ Know the conditions affect foods grown and it’s availability Yr 4 Know some traditional dishes from around the world Yr 4 Know that food is imported/exported ○ DESIGN ○ Investigate and research similar products to give starting points for own design ○ Develop sensory vocabulary/knowledge relating to the taste, texture, smell and appearance of a range of foods Plan and design a finished food product for a specific purpose, creating specific success criteria linked to the design aim ○ MAKE ○ Select and prepare foods for a purpose (predominantly savoury – know food is grown, reared, caught, can be fresh, pre-cooked or processed) ○ Measure and weigh out ingredients appropriately and follow a given recipe to create a dish Use range of techniques – peeling, chopping, slicing, grating, mixing, spreading, kneading, baking Yr 4 with increased precision and independence ○ EVALUATE ○ Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. Prove and evaluate their product Yr4 to evaluate during and after process, including ingredient evaluation against original design and success criteria (how successful/unsuccessful, how well it meets it intended purpose) and explain how to improve their finished product Know about key chefs who have made an impact: Nadiya Hussain – Won GBBO with wedding cake decorated with jewels. Judged Junior bake-off challenge. “She lives her dreams!” 	<p>TECHNICAL KNOWLEDGE/FOOD TECHNOLOGY</p> <ul style="list-style-type: none"> ○ Know the preparing processed of slicing, mixing, weighing/measuring, grating, serving and adding/substituting and the cooking processed of baking, boiling, frying, grilling, griddling, steaming, poaching. ○ Understand the difference between a savoury and sweet dish ○ Revise the food groups, portion recommendations and benefits of each group (nutrients, water, fibre, balance needed for health) ○ Know when food comes from (grown, raised, caught) Yr 6 and what it mean to eat sustainably ○ Know about the seasonality of foods according to seasons and hemispheres (see Knowledge Organiser for explanations and examples) <p>DESIGN</p> <ul style="list-style-type: none"> ○ Create and develop unique ideas for a dish for a specific purpose (predominantly savoury) after collecting information from different sources (research, market research, testing) ○ Explore a range of ingredients and items to develop a sensory food vocabulary to use when designing ○ Create a success criteria Yr 6 and design spec linked to quality, purpose and outcome ○ Develop a design, producing a detailed, step-by-step plan justifying the product design ○ Show that culture and society is considered in plans and designs (where and when relevant) <p>MAKING</p> <ul style="list-style-type: none"> ○ Join and combine food ingredients appropriately e.g beating, rubbing in ○ Know how to prepare a dish/meal by collecting the ingredients in the first place, knowing how and why these should be stored <p>EVALUATE</p> <ul style="list-style-type: none"> ○ Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. ○ Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. ○ Critically evaluate the quality of the design, appearance, and fitness/function for purpose and sustainability of their products as they design and make Yr6 Evaluate against authenticity, innovation and manufacture ○ Know how key chefs have impacted the work of food and nutrition: Heston Blumenthal – Only chef to own 3 Michelin star restaurant in UK; is motto: question everything! This led to bacon and egg ice-cream! Encourager of creativity and innovation! <p>Marguerite Pattern – (BAME) one of earliest celebrity chefs known in WWII thanks to programme on BBC Radio about recipes that worked well with war rationing</p>
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	<p>- Teaching children how to use peelers safely at Forest School -Linking with Teddy Bears' Hospital to find out about healthy food for our bodies.</p> <p>Continuous Provision: Role-play cooking, including using scales in the home corner. Rolling and cutting playdough. Using tools such as scissors, rollers and clay tools during creative activities.</p>			
<p style="text-align: center;">Evaluation</p>	<p>FS: <u>Nursery Spring 2</u> <i>Talk about what they like or don't like in their own or others' art.</i> <i>Begin to verbally plan, do and review.</i> <u>Nursery End/Reception</u> <u>Baseline:</u> <i>Say one thing that they could improve in their artwork. Begin to explain how they have made their model.</i> <u>Reception</u> <u>Spring 2:</u> Explore, use and refine a variety of artistic effects to express their ideas and feelings. <i>Work in a group to create a box model – listening to each other ideas about how to improve and change their model.</i> <i>Explain how they have made a model and what it's purpose it</i> <i>Use plan, do review sheets to support building models.</i> <u>ELG – End of Reception</u> Creating with Materials Share their creations, explaining the process they have used;</p>	<ul style="list-style-type: none"> ○ Talk about their designs as they develop and identify good and bad points ○ Discuss how closely their finished products meets their design success criteria (Yr2 identify likes, dislikes, strengths and possible changes) ○ Say what they like about items made and why. ○ Discuss how closely their finished products meets their design success criteria (Yr2 identify likes, dislikes, strengths and possible changes) ○ Explain what works well and not so well in the model they have made ○ Discuss how closely their finished products meets their design success criteria (Yr2 identify likes, dislikes, strengths and possible changes) 	<ul style="list-style-type: none"> ○ Test, prove and evaluate their product (Yr4 to evaluate during and after process, including ingredient evaluation) against original design and success criteria (how successful/unsuccessful, how well it meets it intended purpose) and explain how to improve a finished product 	<ul style="list-style-type: none"> ○ Critically evaluate the quality of the design, appearance, and fitness/function for purpose and sustainability of their products as they design and make Yr6 Evaluate against design spec plus manufacture, innovation, impact beyond intended purpose
		<ul style="list-style-type: none"> ○ Look at and evaluate existing structures ○ Explain what works well and not so well in the model they have made ○ Say what they like about items made and why. ○ Use own ideas/experiences (Yr2 and the ideas/experiences of others) to generate ideas ○ Select pictures to help develop ideas ○ Yr2 – Develop ideas through discussion, observation, drawing and modelling and make a simple plan of what to do to make the product 	<ul style="list-style-type: none"> ○ Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. ○ Gather information about the needs/wants of individuals/groups. Use this to inform ideas and develop on success criteria ○ Develop more than one realistic design based on needs of the user, adding notes to sketches to explain how to make it (Yr4 plans show different views showing specific features) ○ Prove and evaluate their product (Yr4 to evaluate during and after process, including ingredient evaluation) against original design and success criteria (how successful/unsuccessful, how well it meets it intended purpose) and explain how to improve a finished product ○ Investigate and research similar products to give starting points for own design 	<ul style="list-style-type: none"> ○ Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. ○ Offer a range of ideas after collecting information from different sources, including market research which informs plans, ideas and decisions ○ Explain how a product will appeal to a specific audience and purpose ○ Outline positive design features and draw-backs Yr6 to develop a design specification
		<p style="text-align: center;">FS: Not required</p>	<p>Not Required</p>	<p>WITHIN STRUCTURES</p> <ul style="list-style-type: none"> ○ Understand how design and technology has helped and developed the world: Famous places: St Peter's Basilica; sweet and food packaging (see KO) <p>WITHIN TEXTILES</p> <ul style="list-style-type: none"> ○ Know about key inventions and inventors and their impact: Edmund Cartwright- British invented the power loom powered by water to speed weaving manufacturing process and its impact since History of the needle – first needles were made from bone! Know that Charles Mackintosh invented a way of creating waterproof fabric and Marion Donovan (waterproof nappies) why this is important in life and why it helps us today <p>WITHIN MECHANISMS</p> <ul style="list-style-type: none"> ○ Investigate inventions based on levers and linkages and how these have changed the world

				<p>WITHIN SIMPLE CIRCUITS</p> <ul style="list-style-type: none"> Investigate key inventors and its impact on the world: <ul style="list-style-type: none"> Thomas Edison – inventor of the light bulb Reichard Turere – put in charge of fathers cows. Created own system to scare lions away. Finally settled on lion lights! Youngest person in Kenya to have a patent. TED talk on his invention. No trouble with lions killing livestock any more. Big steps forward in lion conversation <p>WITHIN FOOD AND NUTRITION</p> <ul style="list-style-type: none"> Know about key chefs who have made an impact: Nadiya Hussain – Won GBBO with wedding cake decorated with jewels. Judged Junior bake-off challenge. <i>“She lives her dreams!”</i> 	<p>illustration of 5Rs and catholicity. ‘Nobody knows fit and feel like a blind guy!’ is their comical strapline.</p> <p>WITHIN MECHANISMS</p> <ul style="list-style-type: none"> Investigate inventors and inventions and their impact on the world: <ul style="list-style-type: none"> William Kamkwamba from Malawi – set up windmill during famine and drought. Got water pumping from a well which led to irrigation from crops. Dropped out of school. Used pictures from library books to help. Demonstration of 5Rs and resilience. <p>WITHIN COMPLEX SWITCHES</p> <ul style="list-style-type: none"> Investigate famous inventors who developed ground-breaking electrical systems and components: John Henry Holmes – British, invented the switch; Garrett Morgan (African American inventor) invented the traffic light after witnessing a car crash. <p>WITHIN FOOD AND NUTRITION</p> <ul style="list-style-type: none"> Know how key chefs have impacted the work of food and nutrition: Heston Blumenthal – Only chef to own 3 Michelin star restaurant in UK; is motto: question everything! This led to bacon and egg ice-cream! Encourager of creativity and innovation! Marguerite Pattern – (BAME) one of earliest celebrity chefs known in WWII thanks to programme on BBC Radio about recipes that worked well with war rationing <p>WITHIN COMPUTER PROGRAMMING</p> <ul style="list-style-type: none"> Know about Tim Berners Lee and Grace Hopper and the impact of their inventions of the World Wide Web, the http code and computer coding (Hopper)
Key Vocabulary	Food and Nutrition	<p>FS: Recipe, baking, weighing, mixing, cut, peel, ingredients, make, sweet, sour, crunchy, smooth, hard, soft</p>	<p>Food, Nutrition, Equipment, Ingredients, Recipe, Food Group, Balanced Diet, Food Source, Mixing, Weighing, Baking, Grilling, Health & Safety</p> <p>Vocabulary linked to food (e.g taste – sour, sweet, sharp, tangy, strong, smooth light, heavy; texture – rough, smooth, crumbly, thick; smell – salty, sweet, fruity, savoury, peppery, fresh; feel – smooth, hard, soft, light etc)</p> <p>Vocabulary linked to preparing and making: make, cut, peel, grate, chop, ingredients, weigh,</p>	<p>Hygiene, hygienically, ingredients, recipe savoury, balanced, export, ingredients, diet, savoury, combine, healthy, vocabulary related to taste e.g zesty, bland, sweet, mild, sour, bitter, peppery, spicy, fresh, rich, strong, tasteless, salty; vocabulary related to taste textures e.g crispy, tender-tough, smooth, creamy, chewy, oily, fatty, greasy; vocabulary related to taste smell e.g fragrant, strong, rancid</p>	<p>Ingredients, recipe, savoury, cultural, society, seasonality, harvesting, hygienically, hygiene, savoury, vocabulary linked to taste – bitter, bland, burnt. Bittery, chalky, flavourful, gingery; vocabulary linked to texture – crumbly, grainy, glazed, harsh, gritty, gooey, greasy, heavy, hearty, herbal, powdery, silky, velvety; vocabulary linked to smell – yeasty, stale, nutty, infused, herbal, garlicky, fresh, fermented, citrusy, buttery</p>
	CAD/Programming	<p>FS: Beebot, direction, rotate, turn, forwards, backwards, left, right, go, stop</p>	<p>Sensor, rotate, connect, motor, adapt, change, mechanism, component, connect, attach, product, wheel, axles</p>	<p>Components, electrical, mechanical, computational thinking, program, monitor, control, adapt, manipulate, series circuit, gears/pulleys/cams/levers/linkages</p>	<p>Program, enhance, electronic components, mechanisms, pulleys, gears, belts, cams, adapt</p>
	Textiles	<p>FS: Weave, in, out, up, down, move, ribbon, string, material, thread</p>	<p>Textiles, Fibre, Woven, Cotton, Thread, Needle, Appliqué, Template, Seam, Sew, Design, Make, Evaluate</p>	<p>Textiles, sew/ Stitch, thread, needle, appliqué, seam, aesthetics, running Stitch, back Stitch, over-stitch</p>	<p>Textiles, fabrics, materials, blanket stitch, over-sewing, embellishment, embellish, seam allowance, appearance, function, criteria, enhance, functionality, aesthetics, embroidery</p>
	Mechanisms	<p>FS: Wheel, turn, spin, move, plan, do, review, evaluate, design</p>	<p>Mechanism, Wheel, Axis, Axle, Holder, Friction, Dowel, Chassis, Design, Make, Evaluate</p> <p>Mechanism, Slider, Slot, Lever, fulcrum, Pivot, Guide/ Bridge, Design, Make, Evaluate</p>	<p>mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output linear, rotary, oscillating, reciprocating</p> <p>user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p>	<p>pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram, annotated drawings, exploded diagrams mechanical system, electrical system, input, process, output</p> <p>design decisions, functionality, innovation, authentic, user, purpose, design specification,</p>
	Structures	<p>FS: Build, plan, do, review, join, press, structure, brick, wall, strong, fix.</p>	<p>Structures, Freestanding, Support, Weight, Strong, Rigid, Stable, Base, Materials, Layering, Design, Make, Evaluate, join, attach, structure, buttress</p>	<p>Strengthen, stiffen, stable, sturdy, reinforce, structure, robust, diagonal, triangular, struts, base, prototype, frame, shell, suitability, appearance, function, purpose, criteria, equipment, materials, appropriate, accuracy</p>	<p>Structures, Frame Structures, rigid, beam, Column, Slab, Joints, Foundations, triangulation, Bracing, Malleable, Horizontal, Diagonal, Vertical</p>
	Simple Circuits/Complex switches	<p>FS: N/A</p>		<p>series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device</p> <p>user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p>	<p>series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart</p> <p>function, innovative, design specification, design brief, user, purpose</p>