

Design and Technology Curriculum - Coverage Overview - Summary of Units						
	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Structure Week (short unit)	Starter Structures (1.2 shared) Understanding the need for stability within free-standing structures, including bases and anchors. Overcoming problems with strength and stability when creating posts for a personal phonics or maths washing line.	Swinging Structures (1.2 shared) Extending knowledge of stable structures to understanding the need for braces. Design a swing for a book character, overcoming problems to ensure that the design allows movement without tipping.	Frame Structures (2.6) Understanding strong structures as rigid, and that some shapes are more rigid than others since they allow strength through distribution of weight. Drawing inspiration from world architecture to design a bridge, using bolts and paper rolls, which is strong enough to fulfil a set of function criteria such as a set span or weight-bearing minimum.	Shell Structures (2.7) Exploring curved, hollow, light-weight structures which contain, protect, cover and present using existing products. Understanding use in combination with frame structures. Applying knowledge to create a boat, overcoming additional issues such as waterproofing and loadbearing.	Arch Structures (3.4) Taking inspiration from the Roman ‘True Arch’ and Zaha Hadid Architects, children investigate and design a bridge, building or shelter using everyday materials. Focus on re-visiting designs in the light of problems or stronger design ideas from other groups.	Frame Structures (3.5) Creating kites to investigate lightweight frame structures. Designing and constructing a model building with a rigid structure and strong aesthetics, drawing on existing architectural designs such as the pyramid at the Louvre.
Fabrics (resilience, self-belief & practical competence)	⇨ Sewing Stage One ⇨ ‘Starting Stitching’ Independently threading large plastic needle and adding running stitch to holed-card (e.g. Christmas mitten cards).	⇨ Sewing Stage Two ⇨ ‘We’re Running with these Stitches!’ With confidence, using junior metal needles to add running stitch to large-holed binca (e.g. bookmarks for a younger child in school).	⇨ Sewing Stage Three ⇨ ‘Sew it Seams!’ - Using a smaller metal needle, add neat running stitch and also backstitch to join fabrics in order to create a corner bookmark. - Sew on a 2-hole and 4-hole button.	⇨ Sewing Stage Four ⇨ ‘Experts in the Making’ Using uniform running and backstitch and extending to blanket stitch to create a fitted wristband with an effective fixing.	⇨ Sewing Stage Five ⇨ ‘We’ve Felt Success!’ Independently using running, back and blanket stitch to create a high-quality felt shape for sale or external purpose (e.g. Parish event).	⇨ Sewing Stage Six ⇨ ‘Caring Sew Well for Others’ Using running, back and blanket stitch within the design process to create elements for a safe fidget-blanket (for local care home residents with dementia). ⇨ GD - using petal and then chain stitch ⇨
Autumn	What is Design and Technology? (1.1 shared) - Exploring the purpose of D&T, how to make things, where to get ideas and how to improve them. To also discuss features that worked well and those that could be improved. Lever Mechanisms (1.6) ‘I’m a be-lever’ - Investigating pivot points (fulcrum), inputs and outputs, taking inspiration from existing products to create a simple grabber appropriate for use in the school playground and the local community to pick up light pieces of rubbish.	What is Design and Technology? (1.1 shared) - Exploring the purpose of D&T, understanding that new developments often springboard from existing design and are able to identify design faults. Solid Structures (1.4) ‘Standing Strong’ - Investigating structures made from one or more solid objects joined together, drawing inspiration from brick-built walls and bridges. Using the design process to create a bridge from materials, such as sugar cubes, Jenga, dienes, building blocks, etc., which allow for on-going refinement.	What is Design and Technology? (2.1) - Throughout units, building on understanding of the purpose of D&T and delve deeper into the ‘Think, make, break, repeat’ design process which, over time, has enable to progression of technology and improvements in design. Recognise the need to increase fluency of skills. Linked Levers (2.4) ‘Picking Up Great Ideas’ - Exploring the use of fixed or moving pivots (fulcrum) and levers to alter the change of movement. Increasing expectation of fluency and taking inspiration from investigated products to consider use and user to refine ideas. Using the design process to create working picker for a specific use such as by someone with restricted movement or to pick up a particular, challenging object (extension from Y1).	What is Design & Technology? (2.1) - Throughout units, building on understanding of the purpose of D&T and delve deeper into the ‘Think, make, break, repeat’ with an emphasis on the need to adapt designs to suit the user and external requirements, such as the environment. Paper Circuits (2.3) ‘Bright Sparks!’ - Investigating electrical connections between LEDs, switches and batteries using conductive materials (wire alternatives - copper tape, paint, etc.), taking inspiration to consider the process and end product (illuminated card).	What is Design and Technology (Dyson Focus)? (3.1) - Throughout units, build on understanding of the purpose of D&T and delve deeper into the ‘Think, make, break, repeat’ design process, with a focus on the ‘break’ aspect as a necessary part of improving. Focusing on Dyson to provide a practical way to understand the need to deconstruct in order to learn. Using the development of the television to illustrate reasons for changes over time. Nutrition - Bolognaise (3.10) ‘Capable Future Chefs’ - Focused Unit - Following and adapting recipes which take into consideration specific design criteria as well as incorporating the use of (home-grown) herbs and spices investigated. - Enhancing skills in food safety, hygiene and safe cooking. Food throughout the year (3.8 shared) - Investigating the impact of seasonality on menus and availability/impact of travel on food consumed. - Connecting learning - understanding how culture or religion affects food choices through the year (linked with Islam and Christianity).	What is Design and Technology? (3.1) - Throughout units, building on the understanding of the purpose and process of D&T. Understanding how and why designs are adapted and improved over time. Recognising renowned designs and the way in which these may be considered DT products rather than art. Electric Motors (3.1) ‘Now We’re Motoring’ - Using rotary movement to create movement including linear. Understanding how gears can alter speed or power. Using diagrams to think through a design and refine ideas to improve control and usability.
Spring	Frame Structures (1.3) ‘Keeping it Strong’ - Investigating beams, columns and slabs, examining natural and manufactured frame structures. Examining the four main types of structure: shell, frame, solid and combined. Using the design process and inspiration from existing products, to create a piece of furniture for a book character. Slider Mechanisms (1.5) ‘We Like to Move it!’ - Investigating pushing and pulling rods using guide bridges. Amending and researching to overcome problems in movement and create 3D card designs	Wheel and Axle Mechanism (1.7) ‘The Bog Baby has Wheels’ Investigating wheels and axles (fulcrum) as mechanisms used to allow movement as a rotating lever. Making connections with size of object and force required. Rethinking designs to create a moving vehicle (bog-baby) which reflects design choices and individual responses to problems encountered.	Pneumatics (2.5) ‘A Flair for Air!’ Drawing inspiration from existing products, understand how compressed air (or water - hydraulics) can be used to create motion. Meeting a product design brief (with intended purpose and user) to create an effective lifter or robotic arm.	App Control (2.2) ‘Coding Controllers’ Understanding the function of internal and external apps which control products via WiFi or Bluetooth. Using coding within the design process to produce a lifestyle assistant or a remote-controlled light.	Pulleys and Gears (3.6) ‘Getting into Gear!’ Examining the effects of using pulleys and gears to change the speed and direction of movement, developing knowledge through the construction of a cable-car system or a heavy-lifting device.	Nutrition - Bread (3.9) ‘Rise and Shine!’ - Taking inspiration from existing products, considering purpose, user and design. Incorporating the addition of home-grown flavourings (tomato, onion, etc.). Improving fluency and resilience when overcoming production issues. - Connecting learning with scientific knowledge to ensure food safety and hygiene. Food throughout the year (3.8 shared) - Connecting learning - understanding how culture or religion affects food choices through the year (linked with Christianity and Hinduism).
Summer	Nutrition - Portable snacks (1.8) ‘Snacks on the Go!’ Taking inspiration from existing snacks to follow the design process to investigate the limitations and requirements when making snacks. Developing fluency in skills to create a designed snack. Throughout unit, building knowledge of safety and hygiene.	Nutrition - Couscous Dish (1.9) ‘Couscous Chefs’ Considering purpose, user and a range of existing products to follow the design process and safely create an appealing and nutritious dish. Developing a strong knowledge of safety and hygiene requirements.	Nutrition - Dips (2.9a) ‘Delicious Dips’ - Developing further awareness of suitable equipment and the safety needs of each. Recognise that products must be developed with the user’s needs at the forefront; using the design process to produce dips for a purpose, such as for a vegetarian, for someone with an allergy, or for a specific preference (e.g. spicy food). Safety (2.9b) - Ensuring application of previous knowledge of food hygiene and extending to understanding the need for safe storage.	Nutrition - Vegetable Soup (2.8) ‘Soup-er Success!’ - Appreciating how designers take inspiration from existing products to meet the requirements of the purpose and users. Refining hygiene and safety knowledge, as well as technical skills, such as bridge and claw grip, in preparing a dish for grandparents and carers. Meet a specific brief such as creating the cheapest product whilst maintaining taste, or ensure a high protein content (pulses). Seasonality and nutrition (2.9c) - Applying knowledge of a balanced diet and seasonality to refine their soup recipes.	Artificial Intelligence (3.2) ‘Making Sense of AI’ Applying understanding of Artificial Intelligence in the home to understand the three parts of a system: inputs, processes and outputs. Investigating pressure and distance sensors in preparation for designing and constructing a toy which responds to inputs detected by sensors.	Cams (3.7) ‘Moving On Up!’ Using a cam and follower mechanism to examine how rotational movement can be changed into linear (or rotational in a different direction), understanding the types of movement, including dwell. Children demonstrate increasing fluency through designing a cam-driven toy linked with their Victorian studies.