



Curriculum overview for parents and carers

Design and technology

Summary of key Design and technology learning for Reception to Year 6.

	EYFS: Reception
Unit 1	Workshop
	Junk modelling Exploring materials through junk modelling, children develop their scissor skills and awareness of different materials and joining techniques. Children begin to make verbal plans and material choices before starting, and problem solve while making their model.
Unit 2	Textiles
	Bookmarks Developing fine motor skills through a range of threading activities before moving on to use binka and a needle. Children design a bookmark, considering what to include and why and then follow their designs to complete their bookmarks.
Unit 3	Structures
	Boats Considering the properties of materials through water play, children discover which materials are waterproof and whether they float or sink. Children evaluate a variety of boats and use their new-found knowledge to design and make a boat that is waterproof and floats.

Year 1			
Unit 1	Structures/ Mechanisms	Unit 4	Textiles
	Stable structures Exploring stable shapes using innate sense of balance. Discovering ways to make freestanding structure more stable with a wide or a heavy base. Designing and making a fun and stable pencil pot for a Year 1 pupil. Constructing a windmill Designing, decorating and building a windmill, developing an understanding of different types of windmill, how they work and their key features. Looking at examples of windmills and exploring the functions that they carry out.		Puppets Exploring different ways of joining fabrics before creating hand puppets based upon characters from a well-known fairytale. Developing technical skills of cutting, glueing, stapling and pinning.
Unit 2	Mechanisms	Unit 5	Cooking and nutrition
	Matching slider game An introduction to different types of mechanisms used in products, with a focus on sliding mechanisms. Exploring how to make a simple paper slider before creating a mock-up and final version, of a game with two sliders. Making a moving story book Experimenting with sliders, pupils then plan and make three pages of a moving story book - drawing the page backgrounds, creating the moving parts and assembling it.		Smoothies Handling and exploring fruits and vegetables and learning how to identify a fruit. Undertaking taste tests to identify ingredients for a smoothie they make, and designing and creating packaging for their smoothie.
Unit 3	Mechanisms		
	New Wheels and axles Learning how to cut straight and rounded edges using scissors, developing an understanding of how wheels, axles and axle holders work, and problem-solving to improve their original wheels. Pupils then design and build pull-along toys and evaluate them against design criteria. Wheels and axles Learning about the main components of a wheeled vehicle. Developing understanding of how wheels, axles and axle holders work and problem-solving why wheels won't rotate. Pupils then design and build their own vehicles and evaluate them against a set design criteria.		

Year 2			
Unit 1	Mechanisms	Unit 4	Textiles
	Fairground wheel Designing and creating a functional fairground wheel, children consider how the different components fit together so that the wheel rotates and the structure stands freely. They select appropriate material properties and develop their cutting and joining skills. Research existing structures and survey to further inform the design.		Pouches An introduction to sewing, pupils learn to sew a basic running stitch and then use and create templates to then make their own pouches, designing, cutting, sewing and decorating them.
Unit 2	Cooking and nutrition	Unit 5	Mechanisms
	Balanced diet Exploring and learning what forms a balanced diet, pupils taste test ingredient combinations from different food groups to inform a wrap design of their choice which will include a healthy mix of protein, vegetables and dairy.		Making a moving monster Learning the terms: pivot, lever and linkage, pupils then design a monster that will move using a linkage mechanism. Pupils practise making linkages and experiment with various materials to bring their monsters to life.
Unit 3	Structures		
	Baby bear's chair Using the tale of Goldilocks and the Three Bears as inspiration, pupils help Baby Bear by making him a brand new chair, exploring different shapes and materials. When designing the chair, they consider his needs and what he likes.		

Year 3			
Unit 1	Textiles	Unit 4	Digital world
	Cross stitch and appliqué Cushions or Egyptian collars Pupils learn two new sewing skills: cross stitch and appliqué and then apply these to the design, decoration and assembly of their own cushions or Egyptian collars.		Wearable technology Designing, coding and promoting a piece of wearable technology to use in low light conditions, developing their understanding of programming to monitor and control products to solve a design scenario.
Unit 2	Structures	Unit 5	Mechanical systems
	Constructing a castle Learning about the features of a castle, pupils design and make one of their own. Using configurations of handmade nets and recycled materials to make towers and turrets and constructing a stable base.		*New* Pneumatic toys Exploring how squashed air can be used to create movement within a mechanism and applying this to design and build a working pneumatic toy. Understanding that different diagrams have their own purpose and using different drawings as part of the design process.
Unit 3	Cooking and nutrition		Pneumatic toys
	Eating seasonally Discovering when and where fruits and vegetables are grown and learning about seasonality in the UK. Pupils respond to a brief to design a seasonal food tart using ingredients harvested in the UK in May and June.		

Year 4			
Unit 1	Mechanical systems Mechanical cars Using lollipop sticks, wheels, dowels and straws to create three prototype cars with different mechanisms. Pupils then apply their understanding of mechanisms to design a mechanical car kit, giving consideration to cost, durability and sustainability of the materials. They conduct market research of competitor car kits, create design criteria and provide customer feedback to other groups after testing, compare and evaluating their cars. Making a slingshot car Using lollipop sticks, wheels, dowels and straws to create a moving car. Pupils build a car chassis and design the body of the car, giving consideration to how the shape will affect the car's air resistance. They then construct and test their cars.	Unit 4	Cooking and nutrition Adapting a recipe Evaluating existing biscuits recipes, children then work in groups to adapt a simple biscuit recipe to create a biscuit suited to a chosen target audience. They ensure that their creation comes within a given budget of overheads and ingredients.
	Textiles Fastenings Building upon their sewing skills from previous years, pupils design and create a book sleeve; exploring a variety of fastenings and selecting the most appropriate for their design based on strength and appropriate-use.		Electrical systems Torches Applying their scientific understanding of electrical circuits, pupils design and create a torch made from recycled and reclaimed materials and objects. They then evaluate their products against a set design criteria.
Unit 3	Structure Pavilions Exploring pavilion structures, learning what they are used for and investigating how to create strong and stable structures before designing and creating their own pavilions, complete with cladding.	Unit 5	

Year 5			
Unit 1	Cooking and nutrition	Unit 4	Digital world
	Developing a recipe Researching and modifying a traditional bolognese sauce recipe to improve the nutritional value before then cooking an adapted version and creating packaging that fits a given design criteria. Learning where beef comes from.		Monitoring devices Applying computing skills to program a Micro: bit to monitor optimal temperatures; designing and creating a case or stand for the Micro:bit and developing 3D CAD skills.
Unit 2	Electrical systems	Unit 5	Structures
	Doodlers Further exploring series circuits and introducing motors. Pupils investigate existing products and use their problem-solving skills to establish how they think the products have been constructed, before then creating their own doodler.		Bridges Learning about different types of bridges and exploring how the strength of structures can be affected by the shapes used within them. Pupils then create their own bridge and test its durability - using woodworking tools and techniques.
Unit 3	Mechanical systems		
	Gears and pulleys Exploring the history, mechanics and uses of gears and pulleys, children apply their understanding to make a gear and a pulley system and design an eco-bike that harnesses the energy from an exercise bike to do work.		
	Making a pop-up book Creating a four-page pop-up story book design, incorporating a range of functional mechanisms that use levers, sliders, layers and spacers to give the illusion of movement through interaction.		

Year 6			
Unit 1	Structures	Unit 4	Digital world
	Playgrounds Designing and creating a model for a new playground featuring five apparatus, made from three different structures. Using a footprint as the base, practising visualising objects in plan view and including natural features within their designs.		Navigating the world Programming a navigation tool to produce a multifunctional device for trekkers. Combining 3D virtual objects to form a complete product concept in 3D computer-aided design modelling software.
Unit 2	Mechanical systems	Unit 5	Cooking and nutrition
	Automata toys Using woodworking skills, pupils construct an automata; measuring and cutting their materials, assembling the frame, choosing cams and designing the characters that sit on the followers to form an interactive shop display.		Come dine with me Researching and preparing a three-course meal and taste-testing and scoring their outcomes. Researching the journey of their main ingredient from 'farm to fork' and writing a favourite recipe.
Unit 3	Electrical systems		
	Steady hand game Designing and creating a steady hand game, using nets to make the bases and applying knowledge of electrical circuits to build an operational circuit with a buzzer.		