

Design & Technology Overview



Our Design & Technology Learning Challenges are based on the D&T Association's Projects on a Page themes, with pupils' skills and knowledge being developed across six key areas: **structures, mechanisms, electrical systems, cooking and nutrition, digital world and textiles**. Units can be taught within any order within the year group, as progression builds upon learning from the previous year. Some **digital world** units will be covered during Computing sessions. Units can be taught in any order and teachers are encouraged to adapt their projects to include as many cross curricular opportunities as possible. All D&T units should consider **who** and **why**.

Year 3					
Textiles: Cross-stitch and appliqué	Electrical systems: Electric poster (Additional unit)	Mechanical systems: Pneumatic toys	Digital world: Electronic charm	Food: Eating seasonally	Structures: Constructing a castle
Learn and apply two new sewing techniques – cross-stitch and appliqué. Utilise these new skills to design and make a cushion or Egyptian collar.	Our new electric poster unit introduces children to various forms of 'Information design' before they are briefed to develop an electric museum display based on the Romans.	Explore pneumatic systems, then apply this understanding to design and make a pneumatic toy including thumbnail sketches and exploded diagrams.	Design, develop a program, house and promote a Micro:bit electronic charm to use in low-light conditions.	Learn about various fruits and vegetables, and when, where and why they are grown in different seasons.	Identify and learn about the key features of a castle, before designing and making a recycled-material castle (structure).
Year 4					
Electrical systems: Torches	Mechanical systems: Making a slingshot car	Digital world: Mindful moments timer (Additional Unit)	Food: Adapting a recipe	Structure: Pavilions	Textiles: Fastenings
Identify the difference between electrical and electronic products. Evaluate a range of existing torches and their features, then develop a new functional torch design.	Using a range of materials, design and make a car with a working slingshot mechanism and house the mechanism using a range of nets.	Explore what is meant by mindfulness and write design criteria to fulfil a brief to develop a programmed product for timing a mindful moment.	Work in groups to adapt an existing biscuit recipe, whilst taking into account the cost of the ingredients and other expenses against a set budget.	Investigate and model frame structures to improve their stability, then apply this research to design and create a stable, decorated pavilion.	Analyse and evaluate a range of existing fastenings, then devise a list of design criteria to design, generate templates and make a fabric book sleeve.
Year 5					
Mechanical systems: Pop-up book (Additional unit)	Digital world: Monitoring devices	Electrical systems: Doodlers	Food: What could be healthier?	Structure: Bridges	Textiles: Stuffed toys (Additional Unit)
Create a functional four-page pop-up storybook design, using lever, sliders, layers and spacers to create paper-based mechanisms.	Apply Computing knowledge and understanding to program a Micro: bit animal monitoring device. Develop 3D CAD skills by learning how to navigate the Tinkercad interface and essential tools to combine multiple objects.	Our Doodlers unit explores series circuits further and introduces motors. Explore how the design cycle can be approached at a different starting point, by investigating an existing product, which uses a motor.	Discover the farm to fork process, understand the key welfare issues for rearing cattle. Compare the nutritional value of existing sauces and develop a healthier recipe.	Test and analyse various types of bridge to determine their strength and stability. Explore material properties and sources, before marking, sawing and assembling a wooden truss bridge.	Design a stuffed toy and make decisions on materials, decorations and attachments (appendages), after learning how to sew a blanket stitch.
Year 6					
Digital world: Navigating the world (Additional unit)	Food: Come dine with me	Structure: Playgrounds	Textiles: Waistcoats	Electrical systems: Steady hand game	Mechanical systems: Automata toys
Design and program a navigation tool to produce a multifunctional device for trekkers using CAD 3D modelling software. Pitch and explain the product to a guest panel.	Develop a three-course menu focused on three key ingredients, as part of a paired challenge to develop the best class recipes. Explore each key ingredient's farm to fork process.	Research existing playground equipment and their different forms, before designing and developing a range of apparatus to meet a list of specified design criteria.	Using a combination of textiles skills such as attaching fastenings, appliqué and decorative stitches, children design, assemble and decorate a waistcoat for a chosen purpose.	Understand what is meant by fit for purpose design and form follows function. Design and develop a steady hand game using a series circuit, including housing and backboard.	Develop a functional automata window display, to meet the requirements in a design brief. Explore and create cam, follower and axle mechanisms to mimic different movements.