







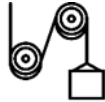
Design Technology Milestones

Knowledge Categories	Big Idea (National Curriculum)	Year R	Years 1 and 2	Years 3 and 4	Years 5 and 6
 <p>Structures</p>	<p>Material functional and aesthetic properties, strength and stability, stiffen and reinforce structures.</p>	<p>Explore junk modelling, tinkering with temporary and permanent joins, and a range of materials. Create basic models to test in different conditions.</p>	<p>Build structures such as windmills and chairs, exploring how they can be made stronger, stiffer and more stable. Recognise areas of weakness through trial and error.</p>	<p>Exploring structures, learning about what they are used for and investigate how to create strong and stable structures before designing and creating their own, complete with cladding. Understand material selection and learn methods to reinforce structures</p>	<p>After learning about various types of bridges and exploring how the strength of structures can be affected by the shapes used, create their own bridge and test its durability - using woodworking tools and techniques. Design and create a model featuring five apparatus, made from three different structures. Using a footprint as the base, practise visualising objects in plan view and get creative including natural features</p>
 <p>Digital World</p>	<p>Program products to monitor and control, develop designs and virtual models</p>			<p>Learn how to develop an electronic product with processing capabilities. Apply Computing principles to program functions within a product including to</p>	<p>Learn how to develop an electronic product with processing capabilities. Apply Computing principles to program functions within a product including to</p>



	using 2D and 3D CAD software.			control and monitor it. Understand how the history and evolution of product design lead to the on-going Digital revolution and the impact it is having in the world today. Design, code and promote 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.	control and monitor it. Understand how the history and evolution of product design lead to the on-going Digital revolution and the impact it is having in the world today. Program a Micro: bit animal monitoring device that will alert the owner when the temperature is not optimal. Develop 3D CAD skills by learning how to navigate the Tinkercad interface and essential tools.
 <p>Cooking & Nutrition</p>	Where food comes from, balanced diet, preparation and cooking skills. Kitchen hygiene and safety. Following recipes.	Explore and become familiar with different fruits and vegetables, using their senses.	Learn about the basic rules of a healthy and varied diet to create dishes. Understand where food comes from, for example plants and animals.	Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods. Pupils discover when and where fruits and vegetables are grown and learn about seasonality in the UK. They respond to a design brief using	Understand what is meant by seasonal foods. Know where and how ingredients are sourced. Research and prepare a three-course meal and taste-test and score their food. Research the journey of their main ingredient from 'farm to fork' and write a favourite recipe.



				ingredients harvested in the UK.	
 Textiles	Fastening, sewing, decorative and functional fabric techniques including cross stitch, blanket stitch and appliqué.	Explore and develop threading and weaving skills with different materials and objects.	Explore different methods of joining fabrics and experiment to determine the pros and cons of each technique.	Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types. Introduce two new skills to add to the pupils' repertoire: cross stitch and appliqué. Pupils apply their knowledge to the design, decoration and assembly of their work.	Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types, including their: <ul style="list-style-type: none"> ● Strength. ● Appropriate use. ● Design Introduce blanket stitch. Select fabrics, use templates, pin, decorate and stitch materials together for a person or purpose of their choosing. Create or use a pattern template to fit a desired person or item (e.g. teddy bear).
 Mechanisms	Mimic natural movements using mechanisms such as cams, followers, levers and sliders.	Explore a simple paper slider mechanism.	Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs. Recognise where mechanisms such as these exist in toys and other familiar products.	Extend pupils understanding of individual mechanisms, to form part of a functional system, for example: Automatas, that use a combination of cams, followers, axles/shaft, cranks and toppler	Incorporate a range of functional mechanisms that use levers, sliders, layers and spacers to give the illusion of movement through interaction. Use 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.



Electrical Systems

Operational series circuits, circuit components, circuit diagrams and symbols, combined to create various electrical products.

Create functional electrical products that use series circuits, incorporating different components such as bulbs, LEDs, switches, buzzers and motors. Consider how the materials used in these products can:

- Protect the circuitry.
- Reflect light.
- Conduct electricity.
- Insulate.

Explore series circuits further and introduce motors. Explore how the design cycle can be approached at a different starting point, by investigating an existing product, which uses a motor, to encourage pupils to problem-solve and work out how the product has been constructed, ready to develop their own.

Design and create a steady hand game, use nets to create the bases and apply knowledge of electrical circuits to build an operational circuit with a buzzer that completes the circuit when the handle makes contact with the wire.

Vocabulary	EYFS	Year 1 and 2	Year 3 and 4	Year 5 and 6
	appropriate construction construction criteria cutting design engineer improve join materials purpose technique	absorb axels balance balanced diet boats cardboard cart connect construct construction cut cutting design	aesthetic allergens allergy architecture assessable barriers cable-stayed bridges caught compression construction criteria dairy	acetate advance a AI alternating current assemble atomic behaviour butter knife carbohydrates circuit codebreakers



	test tools	dicing diet engineer engineering evaluate fabric flight float glide grate healthy heavy hygiene improve join light mark material measure metal moon buggy needle nutrients pivot plastic preparing product purpose sink slice	diet ergonomics foundation frame functional geometric gluten grown hinge investigate lever linkage marketing mechanics mechanism modern motion pivot product prototype reared research safety segments slider stability structure	component construct cooking craft knife criteria cross-contamination decipher deprivation development digital direct current disruptive dowling encrypted energy engineer engineering enhancement enigma ethical evaluate follower fusion hydroelectricity impact innovative linear movement
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