

End Points in Design Technology

Children know this through their use of topic mats.

Teachers know this through their deployment of medium term planning, progression documents and termly foundation assessments.

We subscribe to Kapow for our DT planning.

	Year 3	Year 4	Year 5	Year 6
Autumn (inc Healthy me, healthy planet week)	Ancient Britain	Waterworld	To Infinity and Beyond!	What did Britain Battle for?
Knowledge	Cooking and Nutrition To know that seasonal means foods that grow in a given season in a given country. Some seasonal foods that grow in the UK and what season they grow in. That eating seasonal foods can have a positive impact on the environment. How to describe the flavour and texture of foods. How to cut and peel safely. That the appearance of food is as important as taste. That similar coloured fruits and vegetables often have similar nutritional benefits.	Structures To understand what a frame structure is. To know that a 'free-standing' structure is one that can stand on its own. To know that a pavilion is a decorative building or structure for leisure activities. To know that cladding can be applied to structures for different effects. To know that aesthetics are how a product looks.	Cooking and Nutrition That beef comes from cows reared on farms. That recipes can be adapted to suit nutritional needs and dietary requirements. That nutritional information is found on food packaging. That coloured chopping boards can prevent cross-contamination. That food packaging serves many purposes.	Structures To know that structures can be strengthened by manipulating materials and shapes. To understand what a 'footprint plan' is. To understand that in the real world, design can impact users in positive and negative ways. To know that a prototype is a cheap model to test a design idea. Textiles To understand that it is important to design clothing with the client/target customer in mind. To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. To understand the importance of consistently sized stitches.
Skills	Cooking and Nutrition Describing how climate affects where foods grow. Identifying seasonal ingredients from the UK. Tasting seasonal ingredients.	Structures Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.	Cooking and Nutrition Explaining the farm-to-fork process. Researching existing recipes. Suggesting alternative ingredients.	Structures Designing a playground featuring a variety of different structures, giving consideration to how the structures will be used.

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	Describing the texture and flavour of ingredients. Peeling foods by hand or with a peeler. Cutting ingredients safely. Choosing ingredients based on a design brief. Following the instructions within a recipe. Describing the benefits of seasonal fruits and vegetables and their impact on the environment.	Building frame structures designed to support weight. Creating a range of different shaped frame structures. Making a variety of free-standing frame structures of different shapes and sizes. Selecting appropriate materials to build a strong structure and for the cladding. Reinforcing corners to strengthen a structure. Creating a design in accordance with a plan. Learning to create different textural effects with materials.	Analysing nutritional content. Writing an alternative recipe. Understanding cross-contamination. Using preparation skills. Designing a jar label. Making a developed recipe.	Considering effective and ineffective designs. Building a range of play apparatus structures drawing upon new and prior knowledge of structures. Measuring, marking and cutting wood to create a range of structures. Using a range of materials to reinforce and add decoration to structures. Improving a design plan based on peer evaluation. Testing and adapting a design to improve it as it is developed. Identifying what makes a successful structure. Textiles Designing a waistcoat in accordance with a specification and design criteria to fit a specific theme. Annotating designs. Using a template when pinning panels onto fabric. Marking and cutting fabric accurately, in accordance with a design. Sewing a strong running stitch, making small, neat stitches and following the edge. Tying strong knots. Decorating a waistcoat – attaching objects using thread and adding a secure fastening. Learning different decorative stitches. Sewing accurately with even regularity of stitches.
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				Evaluating work continually as it is created.
Spring <i>(inc Victorian week)</i>	Ancient Greece	Invaders and Settlers	How can we rediscover the wonders of Ancient Egypt?	The Maya
Knowledge	Structures To understand that wide and flat based objects are more stable. To understand the importance of strength and stiffness in structures. To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose. To know that a façade is the front of a structure. To understand that a castle needed to be strong and stable to withstand enemy attack.	Mechanical Systems To understand that all moving things have kinetic energy. To understand that kinetic energy is the energy that something (object/person) has by being in motion. To know that air resistance is the level of drag on an object as it is forced through the air. To understand that the shape of a moving object will affect how it moves due to air resistance.	Mechanical Systems To know that mechanisms control movement. To understand that mechanisms can be used to change one kind of motion into another. To understand how to use sliders, pivots and folds to create paper-based mechanisms. To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	
Skills	Structures Designing a castle with key features to appeal to a specific person/purpose. Drawing and labelling a castle design using 2D shapes. Designing and/or decorating a castle tower on CAD software. Constructing a range of 3D geometric shapes using nets.	Mechanical Systems Designing a shape that reduces air resistance. Drawing a net to create a structure from. Choosing shapes that increase or decrease speed as a result of air resistance. Personalising a design. Measuring, marking, cutting	Mechanical Systems Designing a pop-up book which uses a mixture of structures and mechanisms. Naming each mechanism, input and output accurately. Storyboarding ideas for a book. Following a design brief to make a pop up book, neatly and with focus on accuracy.	

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	Creating special features for individual designs. Making facades from a range of recycled materials. Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. Suggesting points for modification of the individual designs.	and assembling with increasing accuracy. Making a model based on a chosen design. Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	Making mechanisms and/or structures using sliders, pivots and folds to produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. Evaluating the work of others and receiving feedback on their own work. Suggesting points for improvement.	
Summer	What is underneath our feet?	To Russia with Love	What's so great about the USA?	South America
Knowledge	Digital World To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. To know that a micro:bit is a pocket-sized, codeable computer. To know that a simulator is able to replicate the functions of an existing piece of technology. To know what the 'Digital revolution' is and features of some of the products that have evolved as a result. To understand what is meant by 'point of sale display.' To know that CAD stands for 'Computer-aided design'.	Electrical Systems Electrical conductors are materials which electricity can pass through. Electrical insulators are materials which electricity cannot pass through. A battery contains stored electricity that can be used to power products. An electrical circuit must be complete for electricity to flow. A switch can be used to complete and break an electrical circuit.	Electrical Systems To know that, in a series circuit, electricity only flows in one direction. To know when there is a break in a series circuit, all components turn off. To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. To know a motorised product is one which uses a motor to function.	Digital World To know that accelerometers can detect movement. To understand that sensors can be useful in products as they mean the product can function without human input. To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. To know that 'multifunctional' means an object or product has more than one function. To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.

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	To know what a focus group is by taking part in one.			
Skills	Digital World Problem solving by suggesting potential features on a micro:bit and justifying my ideas. Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge. Developing design ideas through annotated sketches to create a product concept. Developing design criteria to respond to a design brief. Following a list of design requirements. Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm. Analysing and evaluating an existing product. Using feedback from peers to improve a design.	Electrical Systems Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. Making a torch with a working electrical circuit and switch. Using appropriate equipment to cut and attach materials. Assembling a torch according to the design and success criteria. Evaluating electrical products. Testing and evaluating the success of a final product.	Electrical Systems Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. Developing design criteria based on findings from investigating existing products. Developing design criteria that clarifies the target user. Altering a product's form and function by tinkering with its configuration. Making a functional series circuit, incorporating a motor. Constructing a product with consideration for the design criteria. Breaking down the construction process into steps so that others can make the product. Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. Determining which parts of a product affect its function and which parts affect its form. Analysing whether changes in configuration positively or negatively affect an existing product. Peer evaluating a set of instructions to build a product.	Digital World Writing a design brief from information submitted by a client. Developing design criteria to fulfil the client's request. Developing a product idea through annotated sketches. Placing and manoeuvring 3D objects, using CAD. Changing the properties of, or combine one or more 3D objects, using CAD. Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). Explaining material choices and why they were chosen as part of a product concept. Programming an N,E, S,W cardinal compass. Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. Developing an awareness of sustainable design. Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch. Demonstrating a functional program as part of a product concept.

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	A Year 3 design technologist will be able to explain that fruits and vegetables grow in different countries based on their climates and that they grow in a given season. They will be able to design a tart recipe using seasonal ingredients. They can also draw and label a simple castle that includes the most common features and utilise skills to build a complex structure from simple geometric shapes. They can give a brief explanation of the digital revolution and remember key examples as well as write a program that initiates a flashing LED panel, or another pattern, on the virtual micro:bit when a button is pressed.	A Year 4 design technologist will design a pavilion that is strong, stable and aesthetically pleasing and be able to select appropriate materials and construction techniques to create a stable, free-standing frame structure. They can choose and use appropriate tools and materials to make mechanical cars and use a problem statement to identify the design criteria. Children will identify electrical products and explain why they are useful and describe what makes a torch successful.	A Year 5 design technologist will learn a simple bolognese recipe and adapt it to improve nutritional content. They can produce a suitable plan for each page of a pop up book and produce the structure of the book. They can use a range of mechanisms and structures to illustrate their story and make it interactive for the users. They will be able to explore series circuits and introduce motors by investigating an existing motorised product.	A Year 6 design technologist will 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. They will be able to design and program a navigation tool to produce a multifunctional device for trekkers using CAD 3D modelling software. Children will pitch and explain the product to a panel.