

Key knowledge for DT

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	<u>Cooking and nutrition- soup</u> <u>Junk modelling</u>		<u>Textiles</u> <u>Junk modelling</u>		<u>Structures- boats</u>	
Year 1		<u>Cooking and nutrition- fruit and vegetables</u> <u>Lesson 1: Fruits</u> To identify fruits. <u>Lesson 2: Growing</u> To describe where fruits and vegetables grow. <u>Lesson 3: Cutting and juicing</u> To practise food preparation skills. <u>Lesson 4: Testing ingredients</u> To select ingredients for a recipe.	<u>Textiles</u> <u>Lesson 1: Joining fabrics</u> To join fabrics together using different methods. <u>Lesson 2: Designing my puppet</u> To use a template to create my design. <u>Lesson 3: Making and joining my puppet</u> To join two fabrics together accurately.	<u>Mechanisms- wheels and axels</u> <u>Lesson 1: How do wheels move?</u> To understand how wheels move. <u>Lesson 2: Fixing broken wheels</u> To identify what stops wheels from turning. <u>Lesson 3: Designing a vehicle</u> To design a moving vehicle.	<u>Mechanisms- making a moving story book</u> <u>Lesson 1: Exploring sliders and movement</u> To explore making mechanisms. <u>Lesson 2: Design</u> To design a moving storybook. <u>Lesson 3: Construction</u> To construct a moving picture.	<u>Structures- Stable Structures: Making a stable pencil pot</u> <u>Lesson 1: Exploring stability</u> To explore stability by balancing. <u>Lesson 2: Building Stable Towers</u> To explore wide or narrow bases by building towers <u>Lesson 3: Stabilising</u>

		<u>Lesson 5: Making smoothies</u> To apply food preparation skills to a recipe. <u>Lesson 6: Evaluating</u> To evaluate against the design brief. <u>Key knowledge:</u> <u>To know:</u> That a blender is a machine which mixes ingredients together into a smooth liquid. That a fruit has seeds and a vegetable does not. That fruits grow on trees or vines.	<u>Lesson 4: Decorating my puppet</u> To embellish my design using joining methods. <u>Key knowledge:</u> <u>To know:</u> That 'joining technique' means connecting two pieces of material together. That there are various temporary methods of joining fabric by using staples, glue or pins. That different techniques for joining materials can be used for different purposes.	<u>Lesson 4: Wacky races</u> To build a moving vehicle. <u>Key knowledge:</u> To know that wheels need to be round to rotate and move. To understand that for a wheel to move it must be attached to a rotating axle. To know that an axle moves within an axle holder which is fixed to the vehicle or toy. To know that the frame of a vehicle (chassis)	<u>Lesson 4: Testing and evaluation</u> To evaluate my finished product. <u>Key knowledge:</u> <u>To know:</u> That a mechanism is the parts of an object that move together. That a slider mechanism moves an object from side to side. That a slider mechanism has a slider, slots, guides and an object. that bridges and guides are bits of card that purposefully restrict the	<u>structures with weight.</u> To test a structure's stability with weight added in different places <u>Lesson 4: Designing a stable pencil pot</u> To design a stable structure that meets the needs of a user. Lesson 5 Make a stable pencil pot To use a variety of cutting and joining techniques to make a stable product. <u>Key knowledge:</u>
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		That vegetables can grow either above or below ground. That vegetables are any edible part of a plant.	That a template (or fabric pattern) is used to cut out the same shape multiple times. That drawing a design idea is useful to see how an idea will look.	needs to be balanced. To know some real-life items that use wheels.	movement of the slider.	To know the user is the person who will use the product. To know different users may want different things from a design. To know a plan is deciding what to do first and next. To know different equipment does different things. To know some products will be better than others. To know their ideas or products can be made better. To know a structure is
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						something that has been made and put together. To know stable structures do not topple.
Year 2	<u>Structures- Baby bear's chair</u> <u>Lesson 1: Exploring stability</u> To explore the concept and features of structures and the stability of different shapes. <u>Lesson 2: Strengthening materials</u> To understand that the shape of the structure affects its strength.	<u>Mechanisms- fairground wheel</u> <u>Lesson 1: Design a Ferris wheel</u> To explore wheel mechanisms and design a Ferris wheel. <u>Lesson 2: Planning the build</u> To select appropriate materials.	<u>Mechanisms- making a moving monster</u> <u>Lesson 1: Pivots, levers and linkages</u> To look at objects and understand how they move. <u>Lesson 2: Making linkages</u> To look at objects and understand how they move.	<u>Cooking and nutrition- a balanced diet</u> <u>Lesson 1: Food groups</u> To recognise foods and their food groups. <u>Lesson 2: Balanced meals</u> To identify the balance of food groups in a meal.		<u>Textiles- Pouches</u> Lesson 1: Running stitch To sew a running stitch. Lesson 2: Using a template To sew a running stitch. Lesson 3: Making a pouch To join fabrics using a running stitch. Lesson 4: Decorating a pouch To decorate a pouch using

	<u>Lesson 3: Making Baby Bear's chair</u> To make a structure according to design criteria. <u>Lesson 4: Fixing and testing Baby Bear's chair</u> To produce a finished structure and evaluate its strength, stiffness and stability. <u>Key knowledge:</u> To know that shapes and structures with wide, flat bases or legs are the most stable. To understand that the shape of a structure affects its strength. To know that materials can be manipulated to	<u>Lesson 3: Building the frame and wheels</u> To build and test a moving wheel. <u>Lesson 4: Adding pods and decoration</u> To make and evaluate a structure with a rotating wheel. <u>Key knowledge:</u> To know that different materials have different properties and are therefore suitable for different uses. To know the features of a Ferris wheel, include the wheel, frame, pods, a base, an axle and an axle holder.	<u>Lesson 3: Designing my monster</u> To explore different design options. <u>Lesson 4: Making my monster</u> To make a moving monster. <u>Key knowledge:</u> To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and an output in a mechanism. To know that an input is the energy that is used to start something working.	<u>Lesson 3: Preparing ingredients</u> To identify an appropriate piece of equipment to prepare a given food. <u>Lesson 4: Taste testing ingredients</u> To select balanced combinations of ingredients. <u>Lesson 5: Planning recipes</u> To design based on criteria. <u>Lesson 6: Creating and evaluating wraps</u>		fabric glue or stitching. Key knowledge: To know that sewing is a method of joining fabric. To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect my fingers when sewing.
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	improve strength and stiffness. To know that a structure is something which has been formed or made from parts. To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. To know that a 'strong' structure is one which does not break easily. To know that a 'stiff' structure or material is one which does not bend easily.	To know that it is important to test my design as I go along so that I can solve any problems that may occur.	To know that an output is the movement that happens as a result of the input. To know that a lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.	To evaluate a dish based on design criteria. <u>Key knowledge:</u> To know: That 'diet' means the food and drink that a person or animal usually eats. What makes a balanced diet. That the five main food groups are: carbohydrates, fruits and vegetables, protein, dairy and oils and spreads. That I should eat a range of different foods from each food		
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				group, and roughly how much of each food group. That 'ingredients' means the items in a mixture or recipe. How to cut, grate, snip and spread to prepare foods. How to review and give a score to evaluate.		
Year 3	<u>Mechanisms- pneumatic toys</u> <u>Lesson 1: Exploring pneumatics</u> To understand how pneumatic systems work.	<u>Cooking and nutrition- eating seasonally</u> <u>Lesson 1: Food around the world</u> To explain why food comes from different	<u>Textiles- Cushions</u> <u>Lesson 1: Cross-stitch and appliqué</u> To learn how to sew cross-stitch and appliqué.	<u>Electrical Systems – Electric Posters</u> <u>Lesson 1: Information design</u> To understand the purpose of	<u>Electrical Systems – Electric Posters</u> <u>Lesson 1: Information design</u> To understand the purpose of	<u>Structures- constructing a castle</u> <u>Lesson 1: Features of a castle</u> To recognise how multiple shapes (2D and 3D) are combined to

<u>Lesson 2: Designing a pneumatic toy</u> To design a toy that uses a pneumatic system. <u>Lesson 3: Making pneumatic toys</u> To create a pneumatic system. <u>Lesson 4: Decorating and assembling my toy</u> To test and finalise ideas against design criteria. <u>Key knowledge:</u> To understand how pneumatic systems work. To understand that pneumatic systems can be used as part of a mechanism.	places around the world. <u>Lesson 2: Seasonal food</u> To explain the benefits of seasonal foods. <u>Lesson 3: Cutting and peeling</u> To develop cutting and peeling skills. <u>Lesson 4: Tasting seasonal ingredients</u> To evaluate seasonal ingredients. <u>Lesson 5: Making a mock-up</u> To design a mock-up using criteria. <u>Lesson 6: Evaluating seasonal tarts</u>	<u>Lesson 2: Cushion design</u> To design a product and its template. <u>Lesson 3: Decorating my cushion</u> To decorate fabric using appliqué and cross-stitch. <u>Lesson 4: Assembling my cushion</u> To assemble and complete a cushion. <u>Key knowledge:</u> To know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric.	the information design. <u>Lesson 2: Topic research</u> To research a set topic to develop a range of initial ideas. <u>Lesson 3: Design Development</u> To develop an initial idea into a final design. <u>Lesson 4: Electric poster assembly</u> To assembly my final product and incorporate a simple circle. <u>Key Knowledge:</u> To understand that an electrical system is a group	the information design. <u>Lesson 2: Topic research</u> To research a set topic to develop a range of initial ideas. <u>Lesson 3: Design Development</u> To develop an initial idea into a final design. <u>Lesson 4: Electric poster assembly</u> To assembly my final product and incorporate a simple circle. <u>Key Knowledge:</u> To understand that an electrical system is a group	form a strong and stable structure. <u>Lesson 2: Designing a castle</u> To design a castle. <u>Lesson 3: Nets and structures</u> To construct 3D nets. <u>Lesson 4: Building a castle</u> To construct and evaluate my final product. <u>Key knowledge:</u> To understand that wide and flat based
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	To know that pneumatic systems operate by drawing in, releasing and compressing air.	To evaluate a dish. <u>Key knowledge</u> 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.	To know that when two edges of fabric have been joined together it is called a seam. To know that it is important to leave space on the fabric for the seam. To understand that some products are turned inside out after sewing so the stitching is hidden.	of parts (components) that work together to transport electricity around a circuit. To understand common features of an electric product (switch, battery or plug, dials, buttons, etc.) To list examples of common electric products (kettle, remote control, etc.) To understand that an electric product uses an electrical system to work (function).	of parts (components) that work together to transport electricity around a circuit. To understand common features of an electric product (switch, battery or plug, dials, buttons, etc.) To list examples of common electric products (kettle, remote control, etc.) To understand that an electric product uses an electrical system to work (function).	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
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		That similar coloured fruits and vegetables often have similar nutritional benefits.		To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.	To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.	to withstand enemy attack.
Year 4	<u>Textiles- fastenings</u> <u>Lesson 1: Evaluating fastenings</u> To explain the advantages and disadvantages of different types of fastening type. <u>Lesson 2: Designing my book sleeve</u> To design a product to meet design criteria.	<u>Structures- pavilions</u> <u>Lesson 1: Exploring frame structures</u> To create a range of different shaped frame structures. <u>Lesson 2: Designing a pavilion</u> To design a structure. <u>Lesson 3: Pavilion frame</u> To build a frame structure.	<u>Electrical systems- torches</u> <u>Lesson 1: Electrical products</u> To learn about electrical items and how they work. <u>Lesson 2: Evaluating torches</u> To analyse and evaluate electrical products.	<u>Mechanisms- making a slingshot car</u> <u>Lesson 1: Chassis and launch mechanism</u> To build a car chassis. <u>Lesson 2: Designing the car body</u> To design a shape that reduces air resistance.	<u>Cooking and nutrition- adapting a recipe</u> <u>Lesson 1: Existing biscuits</u> To evaluate existing biscuit products. <u>Lesson 2: Basic biscuits</u> To prepare and cook a dish.	-

	<u>Lesson 3: Paper mock-up and preparing fabric</u> To make and test a paper template. <u>Lesson 4: Assembling my book sleeve</u> To assemble a book jacket. <u>Key knowledge:</u> To know that a fastening is something that holds two pieces of material together. To know that different fastening types are useful for different purposes. To know that creating a mock-up (prototype) of their design is useful for checking ideas and proportions.	<u>Lesson 4: Pavilion cladding</u> To add cladding to a frame structure. <u>Key knowledge:</u> 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.	<u>Lesson 3: Torch design</u> To design a product to fit a set of specific user needs. <u>Lesson 4: Torch assembly</u> To make and evaluate a torch. To understand that electrical conductors are materials which electricity can pass through. <u>Key knowledge:</u> To understand that electrical insulators are materials which electricity cannot pass through. To know that a battery contains stored electricity	<u>Lesson 3: Making the car body</u> To make a model based on a chosen design. <u>Lesson 4: Assembly and testing</u> To assemble and test my completed product. <u>Key knowledge:</u> To understand that all moving things have kinetic energy. To understand that kinetic energy is the energy that something (object/person)	<u>Lesson 3: Budgeting</u> To select ingredients and follow a budget. <u>Lesson 4: Packaging</u> To take inspiration from existing products. <u>Lesson 5: Market research</u> To make and test a prototype biscuit. <u>Lesson 6: Evaluating biscuits</u> To evaluate a final product. <u>Key knowledge:</u> To know:	
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			that can be used to power products. To know that an electrical circuit must be complete for electricity to flow. To know that a switch can be used to complete and break an electrical circuit.	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.	That the amount of an ingredient in a recipe is known as the 'quantity'. That safety and hygiene are important when cooking. The following cooking techniques: sieving, measuring, mixing/stirring, cutting out and shaping. The importance of budgeting while planning ingredients for a recipe. That products often have a target audience.	
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Year 5	<u>Launch Car – Reeds Launch Car Project</u>	<u>Electrical systems-doodlers</u> <u>Lesson 1: Electrical systems and motors</u> To understand how motors are used in electrical products. <u>Lesson 2: Meet the doodlers</u> To investigate an existing product to determine the factors that affect the product's form and function. <u>Lesson 3: Doodler design and construction</u>		<u>Cooking and nutrition-Developing a recipe</u> <u>Lesson 1: From farm to fork</u> To understand how ingredients are reared and processed. <u>Lesson 2: Different choices</u> To make adaptations to design a recipe. <u>Lesson 3: Nutritional value</u>	<u>Textiles – Stuffed Toys</u> <u>Lesson 1: Designing a stuffed toy</u> To design a stuffed toy <u>Lesson 2: Blanket Stitch</u> To sew a blanket stitch <u>Lesson 3: Details and appendages</u> To create and add decorations to fabric	<u>Digital world-monitoring devices</u> <u>Lesson 1: Monitoring devices</u> To carry out research to develop design criteria. <u>Lesson 2: Programming an animal monitor</u> To write a program to monitor the ambient temperature,

		To apply the findings from research to develop a unique product. <u>Lesson 4: Doodler DIY kits</u> To develop a DIY kit for another individual to assemble their product. <u>Key knowledge:</u> 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		To evaluate nutritional content. <u>Lesson 4: Preparing ingredients</u> To practise food preparation skills. <u>Lesson 5: Designing labels</u> To design a product label. <u>Lesson 6: Making Bolognese</u> To follow and make an adapted recipe. <u>Key knowledge:</u> To know:	<u>Lesson 4 – Stuffed toy assembly</u> To use blanket stitch to assemble the components of a stuffed toy. <u>Key knowledge</u> To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. To understand that it is easier to finish simpler designs to a high standard. To know that soft toys are often made by creating	including an alert. <u>Lesson 3: Plastic</u> To generate creative and unique micro:bit case, stand or housing ideas. <u>Lesson 4: 3D CAD skills</u> To learn about and practise 3D CAD skills. <u>Key knowledge:</u> To know that a ‘device’ means equipment created for a certain purpose or job and that monitoring devices observe and record.
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		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.		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.	appendages separately and then attaching them to the main body. To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose. To understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met. -
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Year 6	<u>Structures: Playgrounds</u> <u>Lesson 1: Design a new playground</u> To design a playground with a variety of structures. <u>Lesson 2: Building structures</u> To build a range of structures <u>Lesson 3: Perfecting structures.</u> To improve and add detail to structures. <u>Lesson 4 – Playground landscapes</u>	<u>Cooking and nutrition: Come dine with me</u> <u>Lesson 1: Complementary Flavours (Optional)</u> To explain the use of complementary flavours <u>Lesson 2: Three ingredients, three courses</u> To research and design a three course meal. <u>Lesson 3: Ingredients and skills (Optional)</u>	<u>Electrical systems: Steady hand game</u> <u>Lesson 1: Developing through play</u> To research and analyse a range of children’s toys. <u>Lesson 2: Game plan</u> To research and analyse a range of children’s toys. <u>Lesson 3: Base building</u> To construct a stable base.		<u>Mechanisms: Automata toys</u> <u>Lesson 1: Automatas</u> To prepare wood for assembly by measuring, marking and cutting each piece. <u>Lesson 2: Frame assembly</u> To assemble the automata frame components and supports with the help of an	<u>Digital world: Navigating the world</u> <u>Lesson 1: Navigating the world</u> To write a design brief and criteria based on a client request. <u>Lesson 2: Programming a navigation tool</u> To write a program to include multiple functions as part of a navigation device.

	To create a surrounding landscape. <u>Key knowledge</u> 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.	To explain recipe choices. <u>Lesson 4 – To start</u> To apply culinary skills and knowledge. <u>Lesson 5 – The main course</u> To apply culinary skills and knowledge. <u>Lesson 6 – The dessert</u> To apply culinary skills and knowledge. <u>Key knowledge:</u> To know: That 'flavour' is how a food or drink tastes. That many countries have 'national dishes' which are	<u>Lesson 4: Electronics and assembly</u> To assemble electronics and complete their electronic game. <u>Key knowledge</u> To know that 'form' means the shape and appearance of an object. To know the difference between 'form' and 'function'. To understand that 'fit for purpose' means that a product works how it should and is easy to use. To know that 'form over purpose'		exploded diagram. <u>Lesson 3: Experimenting with cams</u> To explore the relationship between cam profiles and follower movement to inform a design decision. <u>Lesson 4: Finishing touches</u> To apply the housing and finishing touches to the automata frame. <u>Key knowledge:</u>	<u>Lesson 3: Product concept</u> To develop a sustainable product concept. <u>Lesson 4: 3D CAD models</u> To develop 3D CAD skills to produce a virtual model. <u>Lesson 5: Product pitch</u> To present a pitch to 'sell' the product to a specified client. <u>Key knowledge:</u> To know that accelerometers can detect movement.
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		recipes associated with that country. That 'processed food' means food that has been put through multiple changes in a factory. That it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. What happens to a certain food before it appears on the supermarket shelf (farm to fork)	means that a product looks good but does not work very well. To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. To understand the diagram perspectives 'top view', 'side view' and 'back'.		To understand that the mechanism in an automata uses a system of cams, axles and followers. To understand that different shaped cams produce different outputs. To know that an automata is a hand-powered mechanical toy. To know that a cross-sectional diagram shows the inner workings of a product.	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
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