



Design & Technology

Design							
Generation of ideas							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	<p>ELG – Creating with Materials</p> <p>To experiment with colour, design, texture, form and functions.</p>	<p>design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p>		<p>use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p>			
Skills	<p>To develop their own ideas through experimentation with diverse materials, to express and communicate their discoveries and understanding.</p>	<p>Create a design to meet simple design criteria. Use design software to create a simple plan for a design.</p>	<p>Generate and communicate their ideas through a range of methods. Use design software to create a simple labelled design or plan.</p>	<p>Develop design criteria to inform a design.</p>	<p>Use annotated sketches and exploded diagrams to test and communicate their ideas.</p>	<p>Use pattern pieces and computer aided design packages to design a product.</p>	<p>Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.</p>
Knowledge	<p>To use their increasing knowledge and understanding of tools and materials to explore their interests and enquiries and develop their thinking.</p>	<p>Design criteria are the explicit goals that a project must achieve. Computer aided design has advantages over paper design – it will show how finished products will look; different colours and textures can also be trialled.</p>	<p>Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. Computer aided design helps to identify and solve problems before the product is made. Labels can be added for clarity.</p>	<p>Design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use, appearance, cost and target user.</p>	<p>Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way.</p>	<p>A pattern piece is a drawing or shape used to guide how to make something. There are many different computer aided design packages for designing products.</p>	<p>Design criteria should cover the intended use of the product, age range targeted and final appearance. Ideas can be communicated in a range of ways, including through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p>



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Topic / Coverage	Continuous Provision – Creative area and Construction area	Superheroes – making masks Dinosaur Planet – making a Sockasaurus Rex (sock puppet) Moon Zoom – making a moon buggy/rockets/spacehips	Tunnel, Turrets and Towers – making tunnels, towers and castles (design on computer). Muck Mess and Mixtures – designing their own mud kitchen. Wriggle and Crawl – making a 3D minibeast.	Scrapheap Challenge – Pneumatics I do like to be beside the seaside – picture frames and money boxes	Epic Empires – shield All the fun of the fair – fairground ride	Circles of life – mechanical systems To infinity and beyond – moon buggy	May the Norse be with you – the Bayeux Tapestry Tiempo de fiesta – earthquake proof shelters
Use of ICT							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Understanding the World	Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology					
Skills	To complete a simple program on an electronic device e.g. drawing a picture on a screen.	Use design software to create a simple plan for a design.	Use design software to create a simple labelled design or plan.	Write a program to make something move on a tablet or computer screen.	Write a program to control a physical device, such as a light, speaker or buzzer.	Link a physical device to a computer or tablet so that it can be controlled (such as changing motor speed or turning an LED on and off) by a program.	Use a sensor to monitor an environmental variable, such as temperature, sound or light
Knowledge	To develop their digital literacy skills by being able to access, understand and interact with a range of technologies. To be able to use the internet with adult	Computer-aided design is when computers are used to help design products. It has advantages over paper design in that it will show how finished products will look. Different colours and	Computer software can be used to help design or plan a product. Advantages include identifying and solving problems before the product is made and experimenting with different materials and	A program is a set of instructions written to perform a specified task on a computer.	Remote control is controlling a machine or activity from a distance. Computers can be used to remotely control a device, such as a light, speaker or buzzer.	Equipment and devices can be controlled by pressing buttons on a control panel, such as on a washing machine or microwave.	Computer monitoring uses sensors as a scientific tool to record information about environmental changes over time. Computer monitoring can also log data from sensors and record the resulting



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	supervision to find and retrieve information of interest to them.	textures can also be trialled.	colours. Labels can be added to designs for clarity.				information in a table or graph.
Topic / Coverage	Understanding the World Area (tablets/iPads)	Bright Lights, Big City - create a crown for the queen on Purple mash then create Moon Buggy – designing vehicle	Wriggle and Crawl – designing their minibeast moving pictures Muck, Mess and Mixtures – designing and labelling their own mud kitchen	Year 3 – Hour of code and Scratch Year 4 – Scratch (following instructions on a computer) All covered in Year 5 Codebug (Computing) Year 6 – Programming Year 4 Science – using Circuits			Yr 4 and 5 Science – using sensors
Structures							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	ELG – Creating with Materials To safely use and explore a variety of materials, tools and techniques.	Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. build structures, exploring how they can be made stronger, stiffer and more stable		Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.			
Skills	To use a range of small tools, including scissors, paintbrushes and cutlery.	Construct simple structures, models or other products using a range of materials.	Explore how a structure can be made stronger, stiffer and more stable.	Create shell or frame structures using diagonal struts to strengthen them.	Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.	Build a framework using a range of materials to support mechanisms.	Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.
Knowledge	To use their increasing knowledge and understanding of tools to explore their interests and enquiries and develop their thinking.	Different materials can be used for different purposes, depending on their properties. For example, cardboard is a stronger building material than paper. Plastic is light and can	Structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares. A broader base will also make a structure more stable.	Shell structures are hollow, 3-D structures with a thin outer covering, such as a box. Frame structures are made from thin, rigid components, such as a tent frame. The rigid frame gives the	A prototype is a mock-up of a design that will look like the finished product but may not be full size or made of the same materials. Shell and frame structures can be strengthened by gluing several layers of card	Various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using lolly sticks, skewers and bamboo canes.	Strength can be added to a framework by using multiple layers. For example, corrugated cardboard can be placed with corrugations running alternately vertically and horizontally. Triangular shapes can be used instead



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		float. Clay is heavy and will sink.		structure shape and support. Diagonal struts can strengthen the structure.	together, using triangular shapes rather than squares, adding diagonal support struts and using 'Jinks' corners (small, thin pieces of card cut into a right-angled triangle and glued over each joint to straighten and strengthen them).		of square shapes because they are more rigid. Frameworks can be further strengthened by adding an outer cover.
Topic / Coverage	Creative/Construction Area in Continuous Provision	Bright Lights, Big City – building structures of London Landmarks Dinosaur Planet – junk model dinosaurs, making prehistoric landscapes. Moon Zoom – Making models of spaceships. The Enchanted Woodland – building nests and dens.	Tunnel, Turrets and Towers – building castles, tunnels, towers and bridges. Great Fire of London – recreating Pudding Lane.	H2Woah – 3D lily pads Seaside – picture frames and money boxes	Incredible industry – modroc structures All the fun of the fair – fairground rides	To infinity and beyond – moon buggy Circles of life -	May the nose be with you – Bayeux Tapestry Tiempo de fiesta – Earthquake proof shelters

		Investigation					
EYFS		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	<p>ELG – Creating with Materials To safely use and explore a variety of materials, tools and techniques.</p> <p>ELG – Fine Motor Skills To use a range of small tools, including scissors, paintbrushes and cutlery.</p>	Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).		Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.			



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Skills	<p>To use a range of small tools, including scissors, paintbrushes and cutlery.</p> <p>To be able to use simple tools to effect changes to materials.</p>	<p>Select the appropriate tool for a simple practical task.</p>	<p>Select the appropriate tool for a task and explain their choice.</p>	<p>Use tools safely for cutting and joining materials and components.</p>	<p>Select, name and use tools with adult supervision.</p>	<p>Name and select increasingly appropriate tools for a task and use them safely.</p>	<p>Select appropriate tools for a task and use them safely and precisely.</p>
Knowledge	<p>To use their increasing knowledge and understanding of tools to explore their interests and enquiries and develop their thinking.</p>	<p>Specific tools are used for particular purposes. For example, scissors are used for cutting and glue is used for sticking.</p>	<p>Different tools have characteristics that make them suitable for specific purposes. For example, scissors are used for cutting paper because they have sharp, metal blades that can cut through thin materials..</p>	<p>Specific tools can be used for cutting, such as saws. Wood can be joined using glue, nails, staples, or a combination of these. Safety rules must be followed to prevent injury from sharp blades. These rules include using a bench hook to keep the wood still, using a junior hacksaw with a pistol grip and working under adult supervision.</p>	<p>Useful tools for cutting include scissors, craft knives, junior hacksaws with pistol grip and bench hooks. Useful tools for joining include glue guns. Tools should only be used with adult supervision and safety rules must be followed.</p>	<p>There are many rules for using tools safely and these may vary depending on the tools being used. For example, someone using a chisel should chip or cut with the cutting edge pointing away from their body. All tools should be cleaned and put away after use, and should not be used if they are loose or cracked.</p>	<p>Precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly.</p>
Topic/ coverage	<p>Creative area and fine motor skills area in continuous provision</p>	<p>Dinosaur Planet – making a Sockasaurus Rex. Moon Zoom – making a moon buggy. Enchanted Woodland – making a woodland crown.</p>	<p>Towers, tunnels and turrets – building castles, towers, bridges and tunnels. Wiggles and crawl – making a minibeast moving picture. Muck mess and mixtures – making flapjacks / rice crispie cakes</p>	<p>I do like to be beside the seaside – Photo frames</p>	<p>Epic Empires – shields</p>	<p>Circles of life -</p>	<p>May the Norse be with you – Bayeux Tapestry</p> <p>Tiempo de fiesta - Earthquake proof structures</p>



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		Evaluation						
		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	ELG – Creating with Materials To share their creations, explaining the processes they have used.	Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.		Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals in design and technology have helped shape the world.				
Skills	To be able to express and communicate their discoveries and understanding.	Talk about their own and each other's work, identifying strengths or weaknesses and offering support.	Explain how closely their finished products meet their design criteria and say what they could do better in the future.	Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.	Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.	Test and evaluate products against a detailed design specification and make adaptations as they develop the product.	Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.	
knowledge		A strength is a good quality of a piece of work. A weakness is an area that could be improved	Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.	Asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model.	Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. Evaluation also includes suggesting improvements and explaining why they should be made.	Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture.	Design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it.	



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Topic coverage	Continuous Provision – Creative Area/Construction Area	Dinosaur Planet – evaluating their Sockasaurus Rex. Moon Zoom – evaluating space-related toys and comparing them. Evaluating the strengths and weaknesses of their own/other's moon buggy models.	Towers, tunnels and turrets – evaluating their structures. Wiggles and crawls – evaluating their moving pictures Muck mess and mixtures – evaluating their mud kitchen design	Yabba Dabba doo - sewing H2Woah - 3D lily pads Scrapheap Challenge – moving monsters (pneumatics) Seaside – money boxes and picture frames	Amazia – sewing Incredible Industry – Modroc sculptures All the fun of the fair – fairground rides	To infinity and beyond – moon buggy Eureka – clay pots Circles of life -	.May the Norse be with you – Bayeux Tapestry Tiempo de fiesta - Earthquake proof structures
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Food preparation and cooking							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Managing Self To manage their own basic hygiene and personal needs; understanding the importance of healthy food choices.	use the basic principles of a healthy and varied diet to prepare dishes		Understand and apply the principles of a healthy and varied diet Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.			
Skills	To be able to describe a range of food textures and tastes when cooking and to notice changes when they are combined or exposed to hot and cold temperatures.	Measure and weigh food items using non-standard measures, such as spoons and cups	Prepare ingredients by peeling, grating, chopping and slicing.	Prepare and cook a simple savoury dish.	Identify and use a range of cooking techniques to prepare a simple meal.	Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish.	Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.



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knowledge	To understand the importance of healthy food choices.	Using non-standard measures is a way of measuring that does not involve reading scales. For example, weight may be measured using a balance scale and lumps of plasticine. Length may be measured in the number of handspans or pencils laid end to end.	Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients: peeling skins using a vegetable peeler, such as potato skins; grating hard ingredients, such as cheese or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples.	Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.	Cooking techniques include baking, boiling, frying, grilling and roasting.	Sweet dishes are usually desserts, such as cakes, fruit pies and trifles. Savoury dishes usually have a salty or spicy flavour rather than a sweet one.	Ingredients can usually be bought at supermarkets, but specialist shops may stock different items. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses.
	Topic coverage		<p>Dinosaur Planet – Making dinosaur biscuits</p> <p>Muck mess and mixtures – making flapjacks/rice crispy cakes.</p> <p>Great Fire of London Baking bread rolls.</p> <p>Wriggle and Crawl – making honey and lemon cupcakes – looking at different types of honey.</p>	Stone age food – vegetables, nuts, berries etc (practise skills) Stew	Roman banquet	China/Greek food preparation Circles of life – growing own produce and making salads (marketing also)	Anglo saxon – jam and shortbread Peace in our time – go to local shop and buy ingredients for a pie WW2 cookbook – rations
Nutrition							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	<p>Managing Self</p> <p>To manage their own basic hygiene and personal needs; understanding the importance of healthy food choices.</p>	use the basic principles of a healthy and varied diet to prepare dishes ☑ understand where food comes from		Understand and apply the principles of a healthy and varied diet.			



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Skills	To be able to describe a range of food textures and tastes when cooking and to notice changes when they are combined or exposed to hot and cold temperatures.	Select healthy ingredients for a fruit or vegetable salad.	Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal.	Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars).	Design a healthy snack or packed lunch and explain why it is healthy.	Evaluate meals and consider if they contribute towards a balanced diet	Plan a healthy weekly diet, justifying why each meal contributes towards a balanced diet.
knowledge	To understand the importance of healthy food choices.	Fruit and vegetables are an important part of a healthy diet. It is recommended that people eat at least five portions of fruit and vegetables every day.	A healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables.	There are five main food groups that should be eaten regularly as part of a balanced diet: fruit and vegetables; carbohydrates (potatoes, bread, rice and pasta); proteins (beans, pulses, fish, eggs and meat); dairy and alternatives (milk, cheese and yoghurt) and fats (oils and spreads). Foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet.	Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi-skimmed milk.	A balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct proportions.	Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet.
Topic coverage		Enchanted Woodland – Woodland Treats making mini sandwiches and fruit skewers. Superheroes – looking at food types and following simple ‘superfood’ recipes - smoothies and skewers.	Muck mess and mixtures – sorting healthy and unhealthy food. Following and making a healthy recipe.	Science – food and nutrition			

Origins of food							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6



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National Curriculum		Understand where food comes from		Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.			
Skills		Sort foods into groups by whether they are from an animal or plant source.	Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables)	Identify and name foods that are produced in different places.	Identify and name foods that are produced in different places in the UK and beyond.	Describe what seasonality means and explain some of the reasons why it is beneficial	Explain how organic produce is grown.
knowledge		Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables, grains, beans and nuts.	Food comes from two main sources: animals and plants. Cows provide beef, sheep provide lamb and mutton and pigs provide pork, ham and bacon. Examples of poultry include chickens, geese and turkeys. Examples of fish include cod, salmon and shellfish. Milk comes mainly from cows but also from goats and sheep. Most eggs come from chickens. Honey is made by bees. Fruit and vegetables come from plants. Oils are made from parts of plants. Sugar is made from plants called sugar cane and sugar beet. Plants also give us nuts, such as almonds, walnuts and hazelnuts.	The types of food that will grow in a particular area depend on a range of factors, such as the rainfall, climate and soil type. For example, many crops, such as potatoes and sugar beet, are grown in the south-east of England. Wheat, barley and vegetables grow well in the east of England.	Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru and citrus fruits in California in the United States of America	Seasonality is the time of year when the harvest or flavour of a type of food is at its best. Buying seasonal food is beneficial for many reasons: the food tastes better; it is fresher because it hasn't been transported thousands of miles; the nutritional value is higher; the carbon footprint is lower, due to reduced transport; it supports local growers and is usually cheaper.	Organic produce is food that has been grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives. Organic farmers use crop rotation, animal and plant manures, hand-weeding and biological pest control.



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Topic coverage		<p>Superheroes – discussing healthy diet and food groups and whether they are from an animal or plant source.</p> <p>Linked with science</p>	<p>Muck mess and mixtures – taste testing foods from around the world.</p> <p>Sorting foods in a range of ways.</p> <p>Links with science.</p>				
	Materials						
Materials for Purpose							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	<p>ELG - Creating with Materials</p> <p>To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and functions.</p>	<p>select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p>		<p>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.</p>			
Skills	<p>To experiment with diverse materials e.g. light projected image, loose parts, watercolours, powder paints.</p>	<p>Select and use a range of materials, beginning to explain their choices.</p>	<p>Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.</p>	<p>Plan which materials will be needed for a task and explain why.</p>	<p>Choose from a range of materials, showing an understanding of their different characteristics.</p>	<p>Select and combine materials with precision</p>	<p>Choose the best materials for a task, showing an understanding of their working characteristics.</p>



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knowledge	To develop their own ideas/knowledge through experimentation with diverse materials and use these to express and communicate their discoveries and understanding.	Different materials are suitable for different purposes, depending on their specific properties. For example, glass is transparent, so it is suitable to be used for windows.	Properties of components and materials determine how they can and cannot be used. For example, plastic is shiny and strong but it can be difficult to paint.	Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost.	Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the correct material or component for the specific purpose, depending on the design criteria. Recipe ingredients have different tastes and appearances. They look and taste better and are cheaper when in season.	Materials should be cut and combined with precision. For example, pieces of fabric could be cut with sharp scissors and sewn together using a variety of stitching techniques.	It is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability.
Topic coverage	Creative and Construction areas in continuous provision	Dinosaur Planet – Sockasaurus Rex and prehistoric landscapes. Moon Zoom – making spaceships, moon buggies. The enchanted woodland – woodland crown	Beachcombers – making a treasure book The Scented garden – mud kitchen, scented playdoughs and plants Towers, tunnels and turrets – making structures using a wide range of materials. Wriggle and crawl – Making a minibeast Great Fire of London – recreating Pudding Lane				
Processes							
Electricity							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum				Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors).			



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Skills		Identify products that use electricity to make them work and describe how to switch them on and off.	Create an operational, simple series circuit.	Incorporate a simple series circuit into a model.	Incorporate circuits that use a variety of components into models or products.	Use electrical circuits of increasing complexity in their models or products, showing an understanding of control.	Understand and use electrical circuits that incorporate a variety of components (switches, lamps, buzzers and motors) and use programming to control their products.
knowledge		Electricity is a form of energy. Many household appliances use electricity, such as kettles, televisions and washing machines. They can be switched on by completing the circuit to allow the flow of electricity or off by breaking the circuit to prevent electricity from flowing. This can be a switch on the appliance or a wall socket switch.	A series circuit is made up of an energy source, such as a battery or cell, wires and a bulb. The circuit must be complete for the electricity to flow.	An electric circuit can be used in a model, such as a lighthouse. It can be controlled using a switch.	Components can be added to circuits to achieve a particular goal. These include bulbs for lighthouses and torches, buzzers for burglar alarms and electronic games, motors for fairground rides and motorised vehicles and switches for lights and televisions.	Electrical circuits can be controlled by a simple on/off switch, or by a variable resistor that can adjust the size of the current in the circuit. Real-life examples are a dimmer switch for lights or volume control on a stereo.	Computer programs can control electrical circuits that include a variety of components, such as switches, lamps, buzzers and motor
Topic coverage		Science/computing coverage. Moon Zoom Science Lesson Week 2 (see science planning).	Science coverage	Science coverage	Science coverage	Science coverage	Science coverage

Movements and mechanisms							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum		design purposeful, functional, appealing products for themselves and other users based on design criteria select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]		Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).			



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Skills		Use wheels and axles to make a simple moving model.	Use a range of mechanisms (levers, sliders, wheels and axles) in models or products.	Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.	Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.	Use mechanical systems in their products, such as pneumatics and hydraulics.	Explain and use mechanical systems in their products to meet a design brief.
knowledge		An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels.	A mechanism is a device that takes one type of motion or force and produces a different one. A mechanism makes a job easier to do. Mechanisms include sliders, levers, linkages, gears, pulleys and cams.	Lever consists of a rigid bar that rotates around a fixed point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into up-and-down motion	Mechanisms can be used to add functionality to a model. For example, sliders or levers can be used in moving pictures, storybooks or simple puppets; linkages in moving vehicles or puppets; gears in motorised vehicles or spinning toys; pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures.	Pneumatic systems use energy that is stored in compressed air to do work, such as inflating a balloon to open a model monster's mouth. These effects can be achieved using syringes and plastic tubing. Hydraulic mechanisms work in a similar way, but instead of air, the system is filled with a liquid, usually water. It is important that the system is air or watertight.	Mechanical systems can include sliders, levers, linkages, gears, pulleys and cams. Other mechanisms include pneumatics and hydraulics.
Topic coverage		Moon Zoom – making a moon buggy using wheels and axels.	Wriggle and crawl – minibeast moving pictures including mechanisms such as levers, wheels and sliders (Not on Curriculum Maestro)				
Comparison							
Compare and Contrast							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6



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National Curriculum	ELG – Creating with Materials To share their creations, explaining the processes that they have used.	explore and evaluate a range of existing products evaluate their ideas and products against design criteria		Critique, evaluate and test their ideas and products and the work of others. Investigate and analyse a range of existing products.			
Skills	To respond imaginatively to art works and objects.	Describe the similarities and differences between two products.	Compare different brands of the same product and explain their similarities and differences.	Explain the similarities and difference between the work of two designers.	Create and complete a comparison table to compare two or more products.	Survey users in a range of focus groups and compare results.	Create a detailed comparative report about two or more products or inventions
knowledge	To know the different tools they have used and the materials, explaining the processes they have used.	Two products can be compared by looking at a set of criteria and scoring both products against each one.	Products can be compared by looking at particular characteristics of each and deciding which is better suited to the purpose.	Work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market.	A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored.	A focus group is a small group of people whose reactions and opinions about a product are taken and studied. Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria.	Products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money.
Topic coverage	Observations	Moon Zoom – comparing space-related toys.	Need to look at a discrete lesson for this				

	Humankind
	Everyday products



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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum		Explore and evaluate a range of existing products. evaluate their ideas and products against design criteria		Investigate and analyse a range of existing products. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.			
Skills		Name and explore a range of everyday products and describe how they are used.	Explain how an everyday product could be improved.	Explain how an existing product benefits the user.	Investigate and identify the design features of a familiar product.	Explain how the design of a product has been influenced by the culture or society in which it was designed or made.	Analyse how an invention or product has significantly changed or improved people's lives.
knowledge		Everyday products are objects that are used routinely at home and school, such as a toothbrush, cup or pencil. All products are designed for a specific purpose.	Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive.	Particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box.	Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable.	Culture is the language, inventions, ideas and art of a group of people. A society is all the people in a community or group. Culture affects the design of some products. For example, knives and forks are used in the western world, whereas chopsticks are used mainly in China and Japan. The design of products needs to take into account the culture of the target audience. For example, colours might mean very different things in different cultures.	People's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids.
Topic coverage		<p>Look at the everyday product: toothbrushes – look at wooden ones, children's ones, electric, novelty ones. Explore why they are important and why there are different versions – what is the purpose of this?</p> <p>(to be taught in Spring 1 or 2 as discrete lesson)</p>	<p>Children as a class to identify products that are used everyday. They then choose one of these items and discuss as a class ways in which this product can be improved.</p> <p>(to be taught in Spring 1 or 2 as discrete lesson)</p>				



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		Staying Safe						
		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	<p>ELG – Creating with Materials</p> <p>To safely use and explore a variety of materials, tools and techniques.</p>							
Skills	To practice appropriate safety measures without direct supervision considering both benefits and risk of a physical experience.	Follow the rules to keep safe during a practical task.	Work safely and hygienically in construction and cooking activities.	Use appliances safely with adult supervision	Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray.	Explain the functionality and purpose of safety features on a range of products.	Demonstrate how their products take into account the safety of the user.	
knowledge	<p>Shows understanding of the need for safety when tackling new challenges, and considers and manages some risks by taking independent action or by giving a verbal warning to others.</p> <p>Shows understanding of how to transport and store equipment safely.</p>	Rules are made to keep people safe from danger. Safety rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate and washing hands before touching food.	Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills.	Electrical appliances must only be used under the supervision of an adult. Safety rules must also be followed when using electricity: fingers and other objects must not be put into electrical outlets, anything with a cord or plug should never be used around water and a plug should never be pulled out by its cord.	Chemicals are used in the home every day. They include cleaning products, such as bleach and disinfectant, but also paints, glues, oils, pesticides and medicines. Most chemical products carry a hazard symbol showing in what way the chemical could be harmful. Chemicals should only be used under adult supervision. Appropriate safety precautions, such as wearing goggles and gloves, working in a well-ventilated room, wiping up spills and tying back long hair, should be taken.	Safety features are often incorporated into products that might cause harm. Some examples include the child-safety caps on medicine bottles, seatbelts in cars, covers for electrical sockets and finger guards on doors.	The safety of the user has to be taken into account when designing a new product. Methods to help keep users safe include providing clear instructions for use; clear indication of the age range for which it is designed; safety features (such as child-resistant packaging); warning symbols and electrical safety checks.	



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Topic coverage	Observations	Enchanted Woodland, Superheroes and Dinosaur Planet – following recipes. Links in with PSHE and Science	Muck, mess and mixtures – following recipes Towers, tunnels and turrets – working safely when constructing. Wriggle and Crawl - Making honey and lemon cakes.				
Significance							
Significant people							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum							
Skills		Explore and evaluate a range of existing products	Explore and evaluate a range of existing products.	Understand how key events and individuals in design and technology have helped shape the world.	Understand how key events and individuals in design and technology have helped shape the world.	Understand how key events and individuals in design and technology have helped shape the world.	Understand how key events and individuals in design and technology have helped shape the world.
knowledge		Describe why a product is important. The importance of a product may be that it fulfils its goals and performs a useful purpose.	Explain why a designer of inventor is important, Many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other people in important roles.	Describe how key events in design and technology have shaped the world. Key inventions in design and technology have changed the way people live.	Explain how and why a significant designer or inventor shaped the world. Significant designers and inventors can shape the world.	Describe the social influence of a significant designer or inventor. Many new designs and inventions influenced society. For example, labour-saving devices in the home reduced the amount of housework, which was traditionally done by women. This enabled them to have jobs.	Present a detailed account of the significance of a favourite designer or inventor. The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health, transport, communication, education, the built environment or technology.
Topic coverage		Toothbrushes – look at wooden ones, children’s ones, electric, novelty ones. Explore why they are important.	Towers, tunnels and turrets – Isambard Kingdom Brunel looking at his designs.				

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