

Design & Technology



EYFS		
ELG Physical Development	Moving & Handling - Fine motor skills	<ul style="list-style-type: none"> Use a range of small tools, including scissors, paint brushes and cutlery Begin to show accuracy and care when drawing
	Health & Self Care – Managing Self	<ul style="list-style-type: none"> Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
ELG Expressive Arts & Design	Creating with Materials	<ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function Share their creations, explaining the process they have used

Creativity-Design						
Generation of ideas						
	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 generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology		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	Create a design to meet simple design criteria. Use design software to create a simple plan for a design.	Generate and communicate their ideas through a range of methods. Use design software to create a simple labelled design or plan.	Develop design criteria to inform a design.	Use annotated sketches and exploded diagrams to test and communicate their ideas.	Use pattern pieces and computer aided design packages to design a product.	Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.

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Knowledge	Design criteria are the explicit goals that a project must achieve.	Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology	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.	Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way.	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.	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.
Topic / Coverage	Paws and claws Big Lights, Big City Moon zoom Splendid skies Growing Toys	Dragons Celebrations Light and Dark Traditional Tales A pirate life for me All around the world	Scrapheap challenge. I do like to be by the seaside.	Epic Empires The great exhibition All the fun of the fair	To infinity and beyond	Survival of the fittest Tempo de fiesta
Vocab	Design Label Design goal Drawings models		Design brief Product Criteria Appearance Target user	Annotated sketches Exploded diagrams		Cross sectional diagrams Prototypes
Cross curricular						
Use of ICT-Design						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

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National Curriculum	generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology		generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design			
Skills	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	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 textures can also be trialled.	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 colours. Labels can be added to designs for clarity.	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 information in a table or graph.

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Topic / Coverage						
Cross curricular	Purple Mash	Purple Mash	Purple Mash	Purple Mash	Purple Mash	Purple Mash
Vocabulary						
Structures-Designing						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	<p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>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</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>			

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Skills	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	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 float. Clay is heavy and will sink.	.	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 structure shape and support. Diagonal struts can strengthen the structure.	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 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).	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 of square shapes because they are more rigid. Frameworks can be further strengthened by adding an outer cover.
Topic / Coverage	Paws and claws Big Lights, Big City Moon zoom Splendid skies Growing Toys	A pirate life for me. All around the world.	Scrapheap challenge- I do like to be by the seaside.	All the fun of the fair Epic Empires Incredible industries	Infinity and beyond-moon buggy	Survival of the fittest Tiempo de Fiesta
Cross curricular	Materials-science link					
Vo cab	Structure Model	stable	Hollow Frame structures	Strengthen Struts	Cross braces Guy ropes	Corrugated cardboard

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	Material Purpose properties		rigid	jinks	Diagonal struts	
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	g).					
Cross curricular						

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Vocab	Tools Scissors glue		Glue gun Bench hook Junior hacksaw Pistol grip			Finished polished product
	Evaluation					
	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. 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	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	Paws and claws Big Lights, Big City Moon zoom Splendid skies Growing Toys	Dragons Celebrations Light and Dark Traditional Tales A pirate life for me All around the world	Scrapheap challenge I do like to be by the seaside	Epic Empires Incredible Industries	To infinity and beyond	Survival of the fittest Tiempo Fiesta
Cross curricular						
Vocab	I like my... because...	My product is..my design because...	It could be improved by...	My friend suggested next time....	My friend suggested next time I ... because...	

	Nature-Food and nutrition					
	Food preparation and cooking					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	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.			

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Skills	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 savory 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 dish.	Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
knowledge	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	Moonzoom Splendid skies	Light and Dark	H2Woah	Epic Emperors	To infinity and beyond	Peace in our time?

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Cross curricular	Maths-measures	Maths-measures	Maths-measures	Maths-measures	Maths-measures	Maths-measures
Vocab	Measure weigh	Peel grate Chop slice ingredients	Savory deseed mixing skinning	Baking boiling roasting	Sweet dish	Recipe Greengrocers delicatessens
Nutrition						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	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.			
Skills	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.

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knowledge	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	Moon zoom Splendid skies	Light and Dark	H2Woah	Epic Empires	To infinity and beyond	Peace in our time
Cross curricular	Science RSHE PE	Science RSHE PE	Science RSHE PE	Science RSHE PE	Science RSHE PE	Science RSHE PE
Vocab	Healthy vegetable	Varied diet healthy meal meat, fish, starchy food, dairy, fat.	Carbohydrate, protein, sugar		Balanced diet, correct proportions	justification

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Origins of food –Food and nutrition						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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 covered	Moon zoom Splendid skies	Light and Dark	H2Woah	Epic Empires	To infinity and beyond	Peace in our time?
Cross curricular						
Vocab	Animal source Plant source	Origin of food			seasonality	Organic produce Pesticides fertilisers

Materials -Make						
Materials for Purpose						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics		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.			
Skills	Select and use a range of materials, beginning to explain their choices.	Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.	Plan which materials will be needed for a task and explain why.	Choose from a range of materials, showing an understanding of their different characteristics.	Select and combine materials with precision	Choose the best materials for a task, showing an understanding of their working characteristics.

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knowledge	<p>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.</p>	<p>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.</p>	<p>Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
Topic coverage	<p>Growing Toys</p>	<p>Dragons Celebrations A pirate life All around the world</p>	<p>Scrap heap challenge I do like to be by the seaside</p>	<p>Epic Empires Incredible Industries</p>	<p>To infinity and beyond</p>	<p>Survival of the fittest Tiempo de Fiesta</p>
Cross curricular	<p>Science</p>					

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Vocab	Materials Paper Cardboard properties		Physical properties			
Processes-Technical Knowledge						
Electricity						
	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).			
Skills				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.	
knowledge				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.	

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Topic coverage				All the fun of the fair	To infinity and beyond- lights on moon buggy	
Cross curricular				Science-electricity		
Vocab						

Movements and mechanisms-Technical knowledge						
	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 center 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.	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		. 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	
Topic cover	Growing Toys	A pirate life for me. All around the world.	Scrap heap challenge		Circles of life	
Cross curricula						

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Vocab	Spindle wheel	Sliders, levers, linkages, gears, pulleys and cams	Pneumatics, compressed air, hydraulic mechanisms			
Comparison						
Compare and Contrast						
	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		Critique, evaluate and test their ideas and products and the work of others. Investigate and analyse a range of existing products.			
Skills	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

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knowledge	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	Paws claws Big lights	Traditional Tales A pirate life for me All around the world	Scrap heap challenge I do like to be by the seaside	Epic Empires Incredible Industries	To infinity and beyond	Survival of the Fittest Tiempo de Fiesta
Cross curricular						
Vocab	Similar, different		Visual impact, fitness for purpose, fitness for target market			

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DT sequence of learning-All units will consist of...

Structure of a DT unit	Example linked to year 3 pneumatic systems
1. Investigate real examples	Investigate/know of objects which use pneumatic systems eg balloon pump, bike pump,
2. Disassemble a product	Look at how a pneumatic system works-diagrams
3. Focused practical task linked to final making product.	Show how a pneumatic system works. Children make their own pneumatic systems with tubing and syringes.
4. Design a product matching the design brief.	Design a robot with one moving part.
5. Know about an inventor linked to the topic	Who invented the pneumatic system
6. Make product.	Make robot.
7. Evaluate product against the design brief.	Show case final robots and evaluate how well the product meets the design brief.

Timings:	Session to cover:
First afternoon	1, 2 and 3.

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Second afternoon	4 and 5
Third afternoon	6 and 7