Year	Programme of Study	Key Vocabulary	Key skills and Knowledge (Codes for assessment)	Important People	DT Objectives
1	**Mechanisms** Working with sliders and leavers (creating a moving story book)	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards	**Designing** PDA 1 - work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment PDA 2 - state what products they are designing and making PDA 5 - say how their products will work PDB 3 - develop and communicate ideas by talking and drawing **Making** PMA 1 - plan by suggesting what to do next PMB 2 - use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components PMB 3 - measure, mark out, cut and shape materials and components PMB 4 - assemble, join and combine materials and components **Evaluation** PEA 1 - talk about their design ideas and what they are making PEB 1 - what products are PEB 3 - what products are for PEB 4 - how products work **Technical knowledge** PTK 1 - about the simple working	**Eric Carle** - The Hungry Caterpillar. https://eric-carle.com/ Scissors were invented a very long time ago in ancient Egypt, about 1500 BC. The first scissors were made using one piece of metal. The modern scissors, where the blades are pivoted at a point between the tips and the handles, were invented by the **Romans.**	**Design** - Communicate ideas through talking. **Make** - select from a wide range of tools and equipment to perform practical tasks - Cutting **Evaluate -**explore and evaluate a range of eisiting products (pop up books and leaver books). **Technical Knowledge** - explore and use mechanisms (leavers and sliders.)
	Food Planting seeds, tasting fruits and vegetables (Make a meal for a butterfly?)	ruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients,	**Designing** PDB 5 - use information and communication technology, where appropriate, to develop and communicate their ideas PMB 1 - follow procedures for safety and hygiene **Cooking and nutrition** PCNA 2 - that food has to be farmed, grown elsewhere (e.g. home) or caught **Food preparation** PCNB 1 - how to name and sort foods into the five groups in The eatwell plate PCNB 2 - that everyone should eat at least five portions of fruit and vegetables every day **Technical knowledge** PTK 5 - that food ingredients should be combined according to their sensory characteristics	Marshmallow The **ancient Egyptians** made marshmallows thousands of years ago! They made marshmallows using the root of the marshmallow plant that grows in marshes. Today we use gelatin instead of the mallow root. .	**Design -** Generate and communicate ideas using ICT. **Make-** Select from a range of ingredients - fruits / vergetables. **Evaluate -** evaluate a range of exsitsting products (Organic or farmed). **Cooking nutrition-** Understands where food comes from.
	Structures	planning, investigating design, evaluate, make, user, purpose, ideas, product, cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder	**Designing** PDA 1 - work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment PDA 4 - describe what their products are for PDA 5 - say how their products will work PDA 6 - say how they will make their products suitable for their intended users PDA 7 - use simple design criteria to help develop their ideas PDB 3 - develop and communicate ideas by talking and drawing **Making** PMA 3 - select from a range of materials and components according to their characteristics PMB 2 - use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components PMB 3 - measure, mark out, cut and shape materials and components PMB 4 - assemble, join and combine materials and components **Evaluation** PEA 2- make simple judgements about their products and ideas against design criteria PEA 3 - suggest how their products could be improved PEB 6 - where products might be used PEB 7 - what materials products are made from **Technical Knowledge** PTK 3 - how freestanding structures can be made stronger, stiffer and more stable PTK 6 - the correct technical vocabulary for the projects they are undertaking	Two French brothers **Joseph and Jacques Montgolfier**, born in Annonay, France, were the inventors of the first balloon that carried people into the air. Its first tethered flight was made on 15 October 1783. Its first free flight was made on 21 November 1783. Pilatre de Rozier and Marquis d'Arlandes were the first human passengers to travel in a Montgolfiere balloon. People were flying silk kites in China more than 3,000 years ago. According to legends, General Huan Theng scared his enemies with kites in 202 BC. In about 1800, **George Cayley,** an English inventor discovered that a kite with arched wings and a tail could glide through the air without a breeze to carry it. Later, Cayley built a glider that was large enough to carry a person.	**Design -** Communicate ideas through drawing design. **Make** - select from and use a range of materials that cut be cut and shaped. **Evaluate** - By design criteria. **Technical Knowledge -** build structures exploring how they can be made stronger, stiffer and more stable.

2	**Food** - creating a dish based on a healthy diet.	ruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients	**Designing** PDA 1 - work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment PDA 2 - state what products they are designing and making PDA 3 - say whether their products are for themselves or other users **Cooking and nutrition** PCNA 2 - that food has to be farmed, grown elsewhere (e.g. home) or caught **Food preparation** PCNB 3 - how to prepare simple dishes safely and hygienically, without using a heat source PCNB 4 - how to use techniques such as cutting, peeling and grating **Technical knowledge** PTK 5 - that food ingredients should be combined according to their sensory characteristics	**Wakefield, Ruth** Chocolate chip cookies were made by a lady called Ruth Graves Wakefield (1905-1977) in 1930. The 'Toll House Cookie' was the name of her new cookie invention. It was called this because she ran the Toll House Inn in Massachusetts. Broken up bars of chocolate were used in Ruth's original cookies. Her first cookbook, 'Toll House Tried and True Recipes' was published in 1940. The inventor of the sandwich was a man called **John Montagu, the 4th Earl of Sandwich** (1718-1859). John was apparently too busy to eat one evening and asked his cook to put the meat inside two pieces of bread to save him time. This is how the sandwich was invented.	**Design** - communicate ideas though templates. **Make -** selecting ingredients accounding to their characterists. (food group) **Evaluate** - Evaluate against exsiting products (nutitional value)
	Mechanisms - using wheels and axles in products.	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used	**Designing** PDA 2 - state what products they are designing and making PDA 3 - say whether their products are for themselves or other users PDA 4 - describe what their products are for PDA 7 - use simple design criteria to help develop their ideas PDB 4 - model ideas by exploring materials, components and construction kits and by making templates and mockups **Making** PMA 1 - plan by suggesting what to do next PMB 2 - use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components PMB 3 – measure, mark out, cut and shape materials and components PMB 4 – assemble, join and combine materials and components PMB 5 – use finishing techniques, including those from art and design **Evaluation** PEA 2- make simple judgements about their products and ideas against design criteria PEA 3 - suggest how their products could be improved **Technical Knowledge** PTK 1 - about the simple working characteristics of materials and components PTK 2 - about the movement of simple mechanisms such as levers, sliders, wheels and axles	**Wright Brothers** The Wright Brothers invented, designed, made and flew the first working airplane. Orville and Wilbur Wright's flyer made the world's first controlled, powered flight on 17 December, 1903 at Kitty Hawk, North Carolina, United States. The flight only lasted for 12 seconds but the age of the aircraft had begun. **Heron, an ancient Greek engineer** invented the steam engine. The steam engine was first invented as a toy and called aeolipile, which means 'wind ball' in Greek. In 1968**, Thomas Savery** built the first proper steam engine. It was later improved by **James Watt**.	**Design** - communicate through drawing, design and 'mock ups'. **Make** - select from a range of tools and equipment to perform practical tasks. (Joining and finishing). **Evaluate** by design criteria. **Technical knowledge** - explore and use mechanisums.
	Textiles Purposeful, functional product for use at the seaside.	joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish nvestigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function	**Designing** PDA 1 - work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment PDA 2 - state what products they are designing and making PDA 3 - say whether their products are for themselves or other users PDA 4 - describe what their products are for PDA 5 - say how their products will work PDA 6 - say how they will make their products suitable for their intended users PDB 1 - generate ideas by drawing on their own experiences PDB 2 - use knowledge of existing products to help come up with ideas PDB 3 - develop and communicate ideas by talking and drawing PDB 5 - use information and communication technology, where appropriate, to develop and communicate their ideas **Making** PMA 2 - select from a range of tools and equipment, explaining their choices PMA 3 - select from a range of materials and components according to their characteristics PMB 1 - follow procedures for safety and hygiene PMB 2 - use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components PMB 3 - measure, mark out, cut and shape materials and components **Evaluating** PEA 1 - talk about their design ideas and what they are making PEA 3 - suggest how their products could be improved PEB 1 - what products are PEB 2 - who products are for PEB 3 - what products are for PEB 4 - how products work PEB 5 - how products are used	Velcro was invented in 1948 by a Swiss engineer called **George de Mestral**. While he was out hiking one day, he returned home with lots of burrs (burdock seeds) stuck to his clothing. Burrs attach themselves to the fur of passing animals or clothing on people using hooks or teeth. George used this idea to develop velcro which is made of one strip of nylon with loops, and another with hooks. He patented velcro in 1957.	**Design** - communicate ideas through ICT, drawing and based on design criteria. **Make** - select from a range of tools and expment to perform practical tasks (joing - sewing) **Evaluate** - Evaluate a range of existing products. **Technical knowledge**- Develop templates and joing techniques.

3	**Structures / Shell structures**	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision,	**Designing** PDA 8 - gather information about the needs and wants of particular individuals and groups PDA 15 - indicate the design features of their products that will appeal to intended users PDA 16 - explain how particular parts of their products work **Making** PMA 7 - select tools and equipment suitable for the task PMA 9 - select materials and components suitable for the task PMB 7 - assemble, join and combine materials and components with some accuracy PMB 15 - use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components **Evaluating** PEB 9 - who designed and made the products PEB 10 - where products were designed and made PEB 11 - when products were designed and made PEB 12 - whether products can be recycled or reused **Technical knowledge** PTK 10 - how to make strong, stiff shell structures	**Sir David Brewster**, a Scottish physicist invented the kaleidoscope and patented it in 1817. If you have ever looked into a kaleidoscope you will have seen beautiful, colourful patterns. It makes these images by using mirrors. **Da Vinci, Leonardo** **Leonardo da Vinci** (April 15, 1452 – May 2, 1519) was sometimes described as a universal man. He was skilled in many different areas. He was an inventor, a painter, a sculptor, a scientist and an engineer. He designed detailed sketches of the airplane, the helicopter, the tank, the parachute, the submarine and many other things. Leonardo was well ahead of his time.	**Design** - generate , develop and model ideas through annotated sketches. **Make** - select from a wider range of materials and components. **Evaluate** - investigate and analyse a range of existing products. **Techinical Knowledge** - Apply their knowledge of how to strenghten, stiffen and reinforce more complex structures.
	Food Healthy and varied diet (included cooking)	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	**Designing** PDA 8 - gather information about the needs and wants of particular individuals and groups PDB 7 - make design decisions that take account of the availability of resources **Cooking and Nutrition** PCNB 5 - that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate. PCNB 10 - how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking **Making** PMB 14 - follow procedures for safety and hygiene **Technical knowledge** PTK 12 - that food ingredients can be fresh, pre-cooked and processed	The first microwave oven was invented by **Percy Spencer** after World War II. It was first called the 'Radarange' because it was made from radar technology developed during the war. The first countertop microwave oven was first introduced in 1967. The first-ready mayonnaise was sold in 1905 in the US at **Richard Hellman's** deli in New York. The mayonnaise was sold in glass bottles in 1912 and called 'Hellman's Blue Ribbon Mayonnaise' which is still sold today.	**Designing** - research and develop deisigns that are appealing, aimed at particular indiviuals and groups. **Make** - select from ingredients aacounding to their functional properties. Evaluate - from own design criteria and views of others. **Cooking and Nutition** - Understand and apply the principles of a healthy varied diet.
	Mechanical systems	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards, mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocatings user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing	**Designing** PDA 9 - develop their own design criteria and use these to inform their idea PDB 6 - generate realistic ideas, focusing on the needs of the user PDA13 - work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment PDA 15 - indicate the design features of their products that will appeal to intended users PDA 16 - explain how particular parts of their products work **Making** PMA 4 - order the main stages of making PMB 7 - assemble, join and combine materials and components with some accuracy **Evaluating** PEA 5 - use their design criteria to evaluate their completed products PEB 12 - whether products can be recycled or reused PEA 8 - identify the strengths and areas for development in their ideas and products PEC 1- about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products **Technical knowledge** PTK 11 - that a single fabric shape can be used to make a 3D textiles product	Leonardo da Vinci, the famous Italian artist sketched a simple helicopter about 500 years ago but it was never built. A French mechanic named **Paul Cornu** built the first helicopter to carry a person in 1907. **Henry Ford** developed the first car cheap enough to be purchased by ordinary people. He was the owner of the Ford Motor Company and became one of the richest people in the world.	**Designing** - gerate and model their ideas through prototypes. **Make** - select from and use a wider range of tools and equip,emt to perform practical tasks, joing and finishing. **Evaluating** - understand how key events / individual work from design technology shaped the world. **Technical Knowledge -** understand the mechanical systems in thier products.
	Food	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	**Design** PDA 8 - gather information about the needs and wants of particular individuals and groups PDB 6 - generate realistic ideas, focusing on the needs of the user PDB 10 - share and clarify ideas through discussion **Cooking and nutrition** PCNA 5 - that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world PCNB 6 - that to be active and healthy, food and drink are needed to provide energy for the body PCNB 9 - how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source **Technical knowledge** PTK 12 - that food ingredients can be fresh, pre-cooked and processed	**George Crum** invented the potato chip (crisp) in 1853. Crum worked as a chef at the Moon Lake Lodge in New York. According to a traditional story, a customer complained that the chips were too thick. Crum sliced the chips thinner and gave the customer a second batch. The customer was still not happy. Crum was so annoyed with the customer that he made the chips too thin to eat with a fork. The customer liked them and crisps were invented!	**Design -** Develop design criteria for products aimed at particular groups. **Make -** Select ingredients aacording to functional properties (season). **Evaluate -** Investigate and analyse a range of exsiting products (out of season.) **Cooking and nutition -** understanding seasonality and know where and how a varitey of ingredients are grown, caught and processed.

4	Electrical Systems	series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, annotated sketch, sensory evaluations	**Designing** PDA 9 - develop their own design criteria and use these to inform their idea PDB 7 - make design decisions that take account of the availability of resources. **Making** PMA 4 - order the main stages of making PMB 6 - measure, mark out, cut and shape materials and components with some accuracy PMB 7 - assemble, join and combine materials and components with some accuracy PMA 9 - select materials and components suitable for the task PMA 10 - explain their choice of materials and components according to functional properties and aesthetic qualities **Evaluating** PEA 4 - refer to their design criteria as they design and make PEB 9 - who designed and made the products PEB 10 - where products were designed and made PEB 11 - when products were designed and made PEB 17 - how well products have been designed PEB 18 - how well products have been made PEB 19 - why materials have been chosen **Technical knowledge** PTK 8 - how simple electrical circuits and components can be used to create functional products PTK 20 - how to use learning from mathematics to help design and make products that work.	**Alexander Graham Bell** invented the telephone. **Steve Jobs** worked for Apple. He is credited with the invention of the ipad and iphone, amongst other things. In 1800, an English scientist called **Humphry Davy** made the first electric light. He invented an electric battery after many experiments with electricity. He connected wires to the battery and a piece of carbon. The carbon glowed and produced light, this is called an electric arc. In 1860, an English physicist **Sir Joseph Wilson Swan** wanted to invent a long-lasting electric light. He used a carbon paper filament which worked well but burned too quickly. **Thomas Edison**, an inventor carried out experiments with thousands of different filaments to find the right material which would burn for a long period of time. In 1879 Thomas discovered that a carbon filament glowed in an oxygen free bulb for up to 40 hours before burning up. After more experimenting Edison produced a bulb that could glow for more than 1500 hours.	**Design** - communicate their ideas through cross sectional diagrams. **Make -** select from and use a wider range of materials and components, to their functional properties. **Evaluate** - Understand how key events and indiviuals in design technology have shaped the world. **Technical Knowledge -** Understand and use electrical systems in thier products (incorporating switches, bulbs, buzzers and motors.)
	Textiles	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance	**Designing** PDA 8 - gather information about the needs and wants of particular individuals and groups PDB 6 - generate realistic ideas, focusing on the needs of the user PDA 14 - describe the purpose of their products **Making** PMA 7 - select tools and equipment suitable for the task PMA 8 - explain their choice of tools and equipment in relation to the skills and techniques they will be using PMB 7 - assemble, join and combine materials and components with some accuracy PMB 8 - apply a range of finishing techniques, including those from art and design, with some accuracy **Evaluating** PEA 4 - refer to their design criteria as they design and make PEA 5 - use their design criteria to evaluate their completed products PEA 9 - consider the views of others, including intended users, to improve their work PEB 12 - whether products can be recycled or reused **Technical Knowledge** PTK 11 - that a single fabric shape can be used to make a 3D textiles product	The steel ribbed umbrella was invented in 1852 by an English inventor called **Samuel Fox.**The umbrella was invented a very long time ago. The first umbrellas were used to shade the user from the sun, not protect them from the rain. Umbrellas used as sun shades are called parasols. Ancient China, Egypt, and Greece used umbrellas as much as 4,000 years ago! The Chinese made the first waterproof umbrellas using wax and lacquer. Blue jeans were invented by **Levi Strauss (1829-1902)**. Levi Strauss ran a dry goods store and sold tents and linens.	**Design** - Generate ideas through protoypes and pattern pieces. Developing a design criteria. **Make** - select from and use a wider range of tools and equipment to perform practical tasks (joing and finishing accurately. **Evaluation** - Evaluate thier ideas and products against thier own design criteria and consider the views of others to improve thier work. **Technical knowledge** - Apply their understanding of how to strethgen, stiffen and reinforce moe complex structures.
	Electrical Systems	reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit.	**Designing** PDA 10 - carry out research, using surveys, interviews, questionnaires and web-based resources PDA 16 - explain how particular parts of their products work PDB 9 - make design decisions, taking account of constraints such as time, resources and cost PDA 14 - describe the purpose of their products PDA 15 - indicate the design features of their products that will appeal to intended users PDA 16 - explain how particular parts of their products work **Making** PMA 6 - formulate step-by-step plans as a guide to making PMA 8 - explain their choice of tools and equipment in relation to the skills and techniques they will be using PMA 9 - select materials and components suitable for the task PMB 9 - accurately measure, mark out, cut and shape materials and components PMB 13 - demonstrate resourcefulness when tackling practical problem PDA 14 - describe the purpose of their products PDA 15 - indicate the design features of their products that will appeal to intended users PDA 16 - explain how particular parts of their products work **Evaluating** PEB 14 - how innovative products are PEB 15 - how sustainable the materials in products are PEB 17 - how well products have been designed PEB 18 - how well products have been made PEB 19 - why materials have been chosen **Technical Knowledge** PTK 16 - how to reinforce and strengthen a 3D framework PTK 19 - how to use learning from science to help design and make products that work	**Thomas Edison** is the inventor of the light bulb, microphone, phonograph and kinetoscope. The phonograph was an early record player, and the kinetoscope an early movie camera. **Nikola Tesla** was an expert with electricity. He invented ways of using it safely. **Heinrich Hertz,** a German physicist, discovered radio waves in 1888. The radio was invented by **Nikola Telsa.** The first radio system was made by Italian **Guglielmo Marconi** (1874-1937) in 1895, and in 1901 he sent radio signals across the Atlantic ocean.	**Design-** Generate ideas through exploded diagrams and computer aided design. **Make -** Select from and use a wider range of tools and equipment to perform practical tasks.**Evaluation -** Understand how key events and individuals in deisgn technology have helped shaped the world. **Techical Knowledge -** understand and use electrical systems in thier products (completing circuits, incoorporating switches, bulbs, buzzers and motors. Apply thier understanding of computing to program and monitor and control thier products.

5	Food	ngredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble	**Designing** PDB 9 - make design decisions, taking account of constraints such as time, resources and cost PDB 10 - share and clarify ideas through discussion **Cooking and Nutrition** PCNA 4 - how food is processed into ingredients that can be eaten or used in cooking PCNB 9 - how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source **Making** PMB 14 - follow procedures for safety and hygiene **Technical knowledge** PTK 18 - that a recipe can be adapted by adding or substituting one or more ingredients	Before refrigerators were invented, icehouses were used to provide cool storage. They were placed near freshwater rivers during the winter or packed with snow and ice. William Cullen invented the first method of refrigeration in 1748. In 1803 the first electric refrigerator was invented by **Thomas Moore.**	**Designing** -use research to design products for indiviuals. **Make** - Select from ingredients according to their functional properties. **Evaluation** - Investigate and analyse exsiting products. **Cooking and nutution** - prepare and cook a varitey of prodominantly savoury dishes using a range of cooking skills.
	Strcutures	design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent.	**Designing** PDA 10 - carry out research, using surveys, interviews, questionnaires and web-based resources PDA 11 - identify the needs, wants, preferences and values of particular individuals and groups PDA 15 - indicate the design features of their products that will appeal to intended users PDB 13 - use computer-aided design to develop and communicate their ideas **Making** PMA 6 - formulate step-by-step plans as a guide to making PMB 10 - accurately assemble, join and combine materials and components PMB 11 - accurately apply a range of finishing techniques, including those from art and design PMB 15 - use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components **Evaluating** PEA 7 - evaluate their ideas and products against their original design specification PEB 15 - how sustainable the materials in products are PEB 16 - what impact products have beyond their intended purpose PEB 20 - what methods of construction have been used PEB 21 - how well products work PEB 22 - how well products achieve their purposes PEB 23 - how well products meet user needs and wants **Technical knowledge** PTK 15 - how to program a computer to monitor changes in the environment and control their products PTK 20 - how to use learning from mathematics to help design and make products that work	Lego (interlocking plastic bricks) was patented on 28 January 1958 and were invented by **Godtfred Christiansen.** The word lego comes from the Danish phrase leg godt which means 'play well'.	**Design -** generate, develop and model their ideas using computer aided design. (crumble?) **Make** - Select from and use a winder range of materials and components including construction materials. **Evaluate-** Evaluate products against own criteria and consider thier veiws of others. **Techncal knowledge -** apply thier understanding of how to streghten an reinforce more complex structutres.
	Textiles	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings,	**Designing** PDA 11 - identify the needs, wants, preferences and values of particular individuals and groups PDA 12 - develop a simple design specification to guide their thinking PDA 15 - indicate the design features of their products that will appeal to intended users PDB 9 - make design decisions, taking account of constraints such as time, resources and cost PDB 11 - model their ideas using prototypes and pattern pieces **Making** PMA 5 - produce appropriate lists of tools, equipment and materials that they need PMA 8 - explain their choice of tools and equipment in relation to the skills and techniques they will be using PMA 9 - select materials and components suitable for the task PMA 10 - explain their choice of materials and components according to functional properties and aesthetic qualities **Evaluating** PEA 7 - evaluate their ideas and products against their original design specification PEB 14 - how innovative products are PEB 15 - how sustainable the materials in products are PEB 16 - what impact products have beyond their intended purpose **Technical knowledge** PTK 17 - that a 3D textiles product can be made from a combination of fabric shapes PTK 21 - that materials have both functional properties and aesthetic qualities PTK 22 - that materials can be combined and mixed to create more useful characteristics	The zipper was invented by an American engineer from Chicago, Illinois. His name was **Whitcomb L. Judson** and he patented his clasp locker on August 29, 1893. The name zipper came from the B. F. Goodrich Company in 1923. Goodrich is said to have come up with the name zipper because of the sound they made when opened and closed. A parachute gathers air in its canopy which increases air resistance so that the parachutist can fall slowly and safely to the ground. Canvas (a strong cotton cloth) was used to make the early parachutes. Nylon-fabric is used to make parachutes today. **Leonardo da Vinci** wrote about the idea of using a parachute to fall safely to the ground. Captain Albert Berry was the first man to jump from a flying aeroplane using a parachute.	**Design -** Generate , model and develop ideas through protoypes and pattern pieces. **Make** - select from a wider range of materials components including textiles. **Evaluate** - evlauate their ideas and products against their own design criteria and consider others veiws. **Techinical knowledge -** Combinging different fabric shapes, Apply thier understanding of how to stregthen and reinforce structures.

6	Mechanical systems	pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output function, innovative, design specification, design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype	**Designing** PDA 10 - carry out research, using surveys, interviews, questionnaires and web-based resources PDA 16 - explain how particular parts of their products work PDB 8 - generate innovative ideas, drawing on research **Making** PMA 6 - formulate step-by-step plans as a guide to making PMA 7 - select tools and equipment suitable for the task PMA 8 - explain their choice of tools and equipment in relation to the skills and techniques they will be using PMB 10 - accurately assemble, join and combine materials and components PMB 11 - accurately apply a range of finishing techniques, including those from art and design PMB 12 - use techniques that involve a number of steps PMB 13 - demonstrate resourcefulness when tackling practical problem **Evaluating** PEA 7 - evaluate their ideas and products against their original design specification PEA 8 - identify the strengths and areas for development in their ideas and products PEC 1- about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products PEB 13 - how much products cost to make PEB 14 - how innovative products are PEB 15 - how sustainable the materials in products are PEB 16 - what impact products have beyond their intended purpose **Technical Knowledge** PTK 13 - how mechanical systems such as cams or pulleys or gears create movement PTK 19 - how to use learning from science to help design and make products that work PTK 20 - how to use learning from mathematics to help design and make products that work PTK 22 - that materials can be combined and mixed to create more useful characteristics PTK 23 - that mechanical and electrical systems have an input, process and output	The first American telegraph was built around 1835 by an American inventor and painter, **Samuel Finley Breese Morse** (1791-1872). With help from his business partners, Morse patented the first working telegraph machine in 1837. He used a dots and spaces code for numbers and letters which was later named the Morse Code. **George Washington Gale Ferris Jr.** (1859-1896) designed and built the ferris wheel. It opened to the public on June 21, 1893 and was the world's largest attraction at the World's Columbian Exposition in Chicago. The wheel had 36 cars that could each fit 60 people, giving a total of 2,160 people. The wheel took 20 minutes to complete two revolutions and carried about 38,000 passengers per day.	**Design -** use research to design criteria to inform the design of fuctional products that are aimed at parictuar indiviuals or groups. **Make -** Selected from a wide range of tools and equipment to perform practical tasks. **Evaluate** -Understand dhow key events and individuals have shaped the world. **Technical knowledge-** Understanding the use mechanical systems in their products
	Food	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble	**Designing** PDA 11 - identify the needs, wants, preferences and values of particular individuals and groups PDA 12 - develop a simple design specification to guide their thinking **Making** PMB 14 - follow procedures for safety and hygiene **Food and Nutrition** PCNB 9 - how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source PCNB 10 - how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking PCNB 7 - that recipes can be adapted to change the appearance, taste, texture and aroma **Evaluation** PEB 13 - how much products cost to make PEB 20 - what methods of construction have been used PEB 21 - how well products work PEB 22 - how well products achieve their purposes PEB 23 - how well products meet user needs and wants **Technical Knowledge** PTK 18 - that a recipe can be adapted by adding or substituting one or more ingredients PTK 22 - that materials can be combined and mixed to create more useful characteristics PTK 24 - the correct technical vocabulary for the projects they are undertaking.	**John Pemberton** invented Coca-Cola on 8th May, 1886. He was an American pharmacist and had invented lots of syrups and medicines before.	**Design -**Use research to design and develop design criteria to make appealing products that are fit for purpose. **Make-** Select from a wide range of components and ingredients according to their functional properties. **Evaluate -** Investigate and analyse a range of existing products **Food -** Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) Prepare to cook a variety of dishes using a range of cooking techniques. **Cooking and nutution -** prepare and cook a varitey of prodominantly savoury dishes using a range of cooking skills.