Design &Technology Knowledge Progression Map

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Compare & Contrast	Two products can be compared by finding visual similarities and differences.	Two products can be compared by looking at a set of criteria and scoring both products against each other.	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 (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/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 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.
Cut & Join	Scissors are used to cut fabrics. Glue and tapes can be used to join materials	Scissors are used to cut fabrics. Glue and simple (running) stitches can be used to join fabrics. A running stitch is made by passing a needle in and out of fabric at an even distance.	A running stitch is a basic stitch that is used to join fabric. It is made by passing a needle in and out of fabric at an even distance.	A loom is a piece of equipment that is used for making fabric by weaving wool or thread.	A hem runs along the edge of a piece of cloth or clothing. It is made by turning under a raw edge and sewing to give a neat and quality finish.	A collage is artwork made by sticking materials (scraps of paper or fabric) onto a background. A mixed media collage is made using various materials and media, such as ink and paint.	Pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing.
Decorating textiles	Fabric can be decorated using small objects (buttons and sequins). Decorations can be attached to the fabric by gluing.	Fabric can be decorated using materials and small objects (buttons and sequins). Decorations can be attached to the fabric by gluing, stapling or tying.	Embellishment is a decorative detail or feature added to something to make it more attractive.	A loom weaving is a piece of fabric that has been woven on a loom by interlacing threads. An embellishment is decorative detail or feature, such as silk flower, tassel or bow, added to something to make it more attractive.	Block printing techniques and fabric paint are used to create decorative, repeated patterns on fabrics.	Applique is a technique where pieces of material are attached to another material by stitching or gluing.	Fastenings hold pieces of clothing together. Types of fastenings include: zips, press studs, Velcro and buttons.

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Evaluation	Some tools and techniques can work better than others.	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 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, what changes were made during the making process and why the changes were made. Evaluation also suggests improvements, 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 during manufacture can hep to refine it.
Everyday products	Everyday products are objects that are used routinely at home or school- toothbrush, cup, pencil.	Everyday products are objects that are used routinely at home or school- toothbrush, cup, 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- nail clippers, the spinning top and the cool box.	Design features are the aspects of a products design that its designer would like to emphasise- use of a particular material or feature that makes the product easier to use/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. The design of products needs to consider the culture of the target audience.	People lives have been improved in countless ways due to new inventions/designs. (e.g. Morrison shelter saved the lives of many people caught in WW2 bombing raids)
Food prep & cooking	Comparison measurements, such as heavier, lighter, full, empty, more and less can be used to measure and	Using non-standard measures is a way of measuring that does not involve reading scales. E.g. weight may be measured using a scale and lumps of plasticine.	Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients: peeling, grating and chopping.	Preparation 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- cakes, fruit pies and trifles. Savoury dishes usually have a salty/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 veg, butchers sell meat, fishmongers sell fresh fish and

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	compare amounts.						delicatessens sell cold meats and cheeses.
Generation of Ideas	A plan is to collect ideas before creating.	Design criteria are the explicit goals that a project must have.	Ideas can be communicated in a variety of ways: written work, drawings and diagrams, modelling, speaking and using ICT.	Design criteria are the exact goals a project must achieve to be successful. These criteria might include the products use, appearance, cost and target user.	Annotated sketches and exploded diagrams show specific parts of 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 include the intended use of the product, age range targeted and final appearance. Ideas can be communicated in a range of ways: discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
Investigation	Specific tools are used for particular purposes: scissors for cutting, glue for sticking.	Specific tools are used for particular purposes: scissors for cutting, glue for sticking.	Different tools have characteristics that make them suitable for specific purposes. E.g. scissors are used for cutting because they have sharp, metal blades that can cut through thin materials.	Specific tools can be used for cutting- saws. Wood can be joined using glue, nails, staples or a combination. Safety rules must be followed to prevent injury from sharp blades.	Useful tools for cutting include scissors, craft knives, junior hacksaws, and bench hooks. Useful tools for joining include glue guns. Tools should only be used with adult supervision and safety rules must be followed.	There are many rules for using tools safely and these can vary depending on the tools being used. All tools should be cleaned and put away after use.	Precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fir together.
Materials for Purpose	Materials can have different visual and texture effects.	Different materials are suitable for different purposes, depending on their properties. E.g. glass is transparent so is	Properties of components and materials determine how they can and cannot be used. E.g. plastic is shiny and	Materials for a specific task must be selected on the basis of their properties. These include physical	Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the	Materials should be cut and combined with precision. E.g. pieces of fabric could be cut with scissors and sewn together using a	It is important to understand the characteristics of different materials to select the most appropriate material

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		suitable to be used for windows.	strong but it can be difficult to paint.	properties as well as availability and cost.	correct material/component for the purpose, depending on the design criteria.	variety of stitching techniques.	for a purpose. This might include flexibility, waterproof, texture, cost, colour and availability.
Mechanisms & Movement	A joining point can be used to make an object move.	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 and can be sliders, levers, linkages, gears, pulleys and cams.	Levers consist of a rigid bar that rotates around a fixed point (a fulcrum). They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, axles are shafts on which wheels can rotate, cams are devices that convert circular motion into up-and-down motion.	Mechanisms can be used to add functionality to a model. E.g. gears can be used in motorised vehicles and spinning toys.	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.	N/A
Nutrition	A healthy diet is balanced with different types of food.	Fruit and veg are an important part of a healthy diet. It is recommended that people eat 5 portions a day.	A healthy diet should include meat or fish, starchy foods (potatoes/rice), some dairy foods, a small amount of fat and plenty of fruit and veg.	There are 5 main food groups that make a balanced diet: fruit and veg, carbohydrates (potatoes, rice, bread and pasta), proteins (beans, pulses, eggs, fish 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.	Healthy snacks include fresh/dried fruit and veg, nuts and seeds, rice cakes. A healthy lunch might include: brown/wholemeal sandwich containing eggs, fish, meat, or cheese, a piece of fruit, a low-sugar yoghurt, rice cake and a drink (water or 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, sugar or salt can still be eaten occasionally as part of a balanced diet.

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Origins of food	Food can be grown or made.	Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants- fruit, vegetables, grains, beans and nuts.	Food comes from two main sources- animals and plants. Cows provide beef, sheep provide lamb. Examples of poultry include chickens and turkeys and fish are cod and salmon. Milk comes mainly from cows but can come from goats and sheep.	The types of food that will grow in particular area depend on a range of factors- rainfall, climate and soil type. E.g. potatoes grow well in the south-east of England whilst veg is grown best in the east of England.	Particular areas of the world have conditions suited to growing crops- coffee in Peru, citrus fruits in California, USA.	Seasonality is the time of year when the harvest or flavour of a type of a food is at its best. Buying seasonal food is beneficial for many reasons- its fresher, the nutritional value is higher, it supports local growers and is usually cheaper.	Organic produce is food that has been grown without the use of man-made fertilisers, pesticides or animal feed additives. Organic farmers use crop rotation, animal and plant manures and biological pest control.
Significant people	A product Is for a purpose.	The importance of a product may be that it fulfils its goals and performs a useful purpose.	Many key individuals have helped shape the world- engineers, scientists, designers and inventors.	Key inventions in design and technology have changed the way people live.	Significant designers and inventors can shape the world.	Many new designs and inventions influenced society. E.g. labour-saving devices in the home reduced the amount of housework, which was traditionally done by women. This enabled them to have jobs.	The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health transportation education, or technology. It may enhance culture through fashion, ceramics or computer games.
Staying Safe	Rules are made to keep people safe from danger. Safety rules include: listening carefully and following	Rules are made to keep people safe from danger. Safety rules include: listening carefully and following instructions, using equipment only as and when directed	Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back and wiping up spills.	Electrical appliances must only be used under the supervision of an adult. Safety rules must also be followed- fingers and other objects must not be put into sockets,	Chemicals are used in the home every day (bleach, disinfectant as well as paints, glues and medicines). Most chemical products carry a hazard symbol showing in what way	Safety features are often incorporated into products that might cause harm. E.g. child caps on medicine bottles, seatbelts in cars and	The safety of the user has to be taken int account when designing a new product. Methods include providing clear instructions, clear indication of age-

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	instructions, washing hands before touching food.	and, if appropriate, washing hands before touching food.		anything with a cord/plug should never be used around water.	the chemical could be harmful. Safety precautions like wearing gloves/goggles should be taken.	finger guards on doors.	range, safety features and warning symbols.
Structures	Structures are 3D models. Joining techniques helps a structure to stand.	Different materials can be used for different purposes, depending on their properties. E.g. cardboard is a stronger building material than paper. Plastic is light and can float.	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, 3D structures with a thin outer covering, such as a box. Frame structures are made from thin, rigid components which gives structure and support Diagonal struts can strengthen the structure.	A prototype is a mock-up of a design that 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, adding diagonal struts and using 'Jinks' corners.	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. E.g. corrugated cardboard can be placed with the corrugations running alternatively horizontally and vertically. Triangular shapes can be used as they are more rigid than squares. Frameworks can be further strengthened by adding an outer cover.