Skills progression: Design and Technology

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Substantive Knowledge						
Developing, planning and communicating ideas	Begin to draw on their own experience to talk about ideas and plans. Begin to talk about the qualities of existing products: what they could be for and how they may work. Begin to understand that products are made for a target group. Begin to develop their ideas through talk and drawings	Begin to draw on their own experience to help generate ideas and research conducted on criteria Begin to understand the development of existing products: what they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do Understand how to identify a target group for what they intend to design and make based on a design criteria Begin to develop their ideas through talk and drawings. Make templates and mock ups of their ideas in card and paper or using ICT	Start to generate ideas by drawing on their own and other people's experiences Begin to develop their design ideas through discussion, observation, drawing and modelling Identify a purpose for what they intend to design and make Understand how to identify a target group for what they intend to design and make based on a criteria Develop their ideas through talk and drawings and label parts. Make templates and mock ups of their ideas in card and paper or using ICT	With growing confidence generate ideas for an item, considering its purpose and the user/s Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product Understand how well products have been designed, made, what materials have been used and the construction technique Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products Start to understand whether products can be recycled or reused Know to make drawings with labels when designing -When planning explain their choice of materials and components including function and aesthetics	Start to generate idas, considering the purposes for which they are designing – link with Mathematics and Science Confidently make labelled drawings from different views showing specific features Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. Identify the strengths and areas for development in their ideas and products When planning consider the views of others, including intended users, to improve their work Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking technology When planning explain their choice of materials and components according to function and aesthetic	Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, protypes and pattern pieces Begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose With growing confidence apply a range of finishing techniques including those from art and design Draw up a specification for their design-link with Mathematics and Science Use results of investigations, information sources, including ICT when developing design ideas With growing confidence select appropriate materials, tools and techniques Start to understand how much products cost to make, how sustainable and innovative they are and the impact products have beyond their purpose	Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes and pattern pieces Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose Accurately apply a range of finishing techniques including those from art and design Draw up a specification for their design – link to Mathematics and Science Plan the order of their work, choosing appropriate materials, tools and techniques Suggest alternative methods of making if the first attempts fail Identify the strengths and areas for development in their ideas and products Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose

Working with tools, equipment, materials and components to make quality products	Begin to make products using appropriate techniques. Being to build structures, exploring how they can be improved or changed. Explore and use products with wheels and mechanisms. With help cut and shape a range of materials. Explore using simple tools. Begin to join and combine materials using a variety of temporary methods e.g. masking tape. Begin to add simple details to improve the appearance of their product.	Begin to make their design using appropriate techniques Being to build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms (wheels) in their products With help measure, mark out, cut and shape a range of materials Explore using tools e.g. scissors and a hole punch safely Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape Begin to use simple finishing techniques to improve the appearance of their product	Begin to select tools and materials; use correct vocabulary to name and describe them Build structures, exploring how they can be made stronger, stiffer and more stable With help measure, cut and score with some accuracy. Learn to use hand tools safely and appropriately Start to assemble, join and combine materials in order to make a product Demonstrate how to cut, shape and join fabric to produce a simple product. Use basic sewing techniques Start to choose appropriate finishing techniques based on own ideas	Select a wide range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients and mechanical components Explain their choice of tools and equipment in relation to the skills and techniques they will be using Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement Measure, mark out, cut, score and assemble components with more accuracy Start to work safely and accurately with a range of tools Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work Start to measure, tape, or pin, cut and join fabric with some accuracy	Select a wider range of tools and techniques for making their product safely Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques Start to join and combine materials and components accurately in temporary and permanent ways Understand how more complex electrical circuits and components can be used to create functional products Continue to learn to program a computer to monitor changes in the environment and control their products Understand how to reinforce and strengthen a 3D framework. Now sew using a range of different stitches to wave and knit Demonstrate how to measure, tape or pin, cut and join with some accuracy Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT	Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately 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 Understand how mechanical systems such as cams or pulleys or gears create movement Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products Understand that mechanical and electrical systems have an input, process and output Begin to measure and mark out more accurately Demonstrate how to use skills in using different tools and equipment safely and accurately with growing confidence cut and join with accuracy to ensure a good-quality finish to the product Weigh and measure accurately (time, dry ingredients and liquids) Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT	Confidently select appropriate tools, materials, components and techniques and use them Use tools safely and accurately Assemble components to make working models Aim to make and achieve a quality product With confidence pin, sew and stitch materials together to create a product Demonstrate when to make modifications as they go along Construct products using permanent joining techniques Understand how mechanical systems such as cams or pulleys or gears to create movement Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products Know how to reinforce and strengthen a 3D framework Understand that mechanical and electrical systems have an input, process and output Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT

Evaluating processes and products	Start to evaluate their product by discussing how saying or showing how successful they feel it is. When looking at existing products explain if they like and dislike them.	Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria) When looking at existing products explain what they like and dislike about products and why Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make	Evaluate their work against design criteria Look at a range of existing products explain what they like and dislike about products and why Start to evaluate their products as they are developed, identifying strengths and possible changes they might make With confidence, talk about their ideas, saying what they like and dislike about them	Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose Begin to disassemble and evaluate familiar products and consider the views of others to improve them Evaluate the key designs of individuals in design and technology which have helped to shape the world	Evaluate their products carrying out appropriate tests Start to evaluate their work both during and at the end of the assignment Be able to disassemble and evaluate familiar products and consider the views of others to improve them Evaluate the key designs of individuals in design and technology which has helped shape the world	Start to evaluate a product against the original design specification and by carrying out tests Evaluate their work both during and at the end of the assignment Begin to evaluate it personally and seek evaluation from others Evaluate the key designs of individuals in design and technology who have helped to shape the world	Evaluate their products, identifying strengths and areas for development and carrying out appropriate tests Evaluate their work both during and at the end of the assignment Record their evaluations using drawings with labels Evaluate against their own criteria and suggest ways in which their product could be improved Evaluate the key designs of individuals in design and technology which have helped shape the world

Cooking and Nutrition	Be able to name some food which comes from plants or animals. Start to understand that people should eat a mixture of foods- 'The Eat Well Plate.' Begin to understand that everyone should eat fruit and vegetables every day. Know how to prepare simple dishes safely and hygienically, without using a heat source. Know how to use techniques such as peeling.	Begin to understand that all food comes from plants or animals Explore the understanding that food has to be farmed, grown elsewhere or caught Start to understand how to name sort foods into the five groups in 'The Eat Well Plate' Begin to understand that everyone should eat at least five portions of fruit and vegetables every day Know how to prepare simple dishes safely and hygienically, without using a heat source. Know how to use techniques such as cutting, peeling and grating	Understand that all food comes from plants or animals Know that food has to be farmed, grown or caught Understand how to name and sort food into the five groups in 'The Eat Well Plate' Know that everyone should eat at least five portions of fruit and vegetables every day Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source Demonstrate how to use techniques such as cutting, peeling and grating	Start to know 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 Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Start to understand that a healthy diet is make up from a variety and balance of different food and drink, as depicted in 'The Eat Well Plate' -Begin to know that to be active and healthy, food and drink are needed to provide energy for the body	Understand 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 Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat Well Plate' -Begin to know that to be active and healthy, food and drink are needed to provide energy for the body	Understand 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 Begin to understand that season may affect the food available - Understand how food is processed into ingredients that can be eaten or used in cooking Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source Start to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Begin to understand that difference food and drink contain difference substances - nutrients, water and fibre – that are needed for health	Know 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 Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source Understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Know different food and drink can contain different substances – nutrients, water and fibre – that are needed for health

	Disciplinary Knowledge		
Developing, planning and communicating ideas	**Year 1** Drawing on previous experiences of eating gingerbread, playing with toy cars, seeing bunting displayed. Which gingerbread. toy car, bunting is the best? Explore existing products. Discuss why people purchase and eat gingerbread, buy and play with toy cars, buy and display bunting. Explore how each product is used. Create ideas for your own product inspired by these. Discuss/Survey who eats/uses pizza, toy mini and puppets. (1) Discuss/Survey who buys gingerbread, toy cars and bunting. (2) Collect ideas as to how the designs of each product make people want to buy them. Make a paper/playdough version of their gingerbread design. Make a mock up of their vehicle – Lego? Make a paper plan of their bunting. **Year 2** Discuss/Survey who eats/uses pizza, toy mini and puppets. (1) Discuss/Survey who buys gingerbread, toy cars and bunting. (2) Collect ideas as to how the designs of each product make people want to buy them. Drawing on previous experiences of eating pizzas, playing mini golf or with puppets. Which gingerbread, mini golf course, puppet is the best? Explore existing products. Make a paper design of their pizza. Make a drawing of their mini golf course. Make a paper mock-up of their puppet. Discuss the reasons people eat pizza, play mini golf, use puppets. Explain what they are going to create. Make a paper design of their pizza. Make a drawing of their mini golf course. Make a paper mock-up of their puppet.	**Year 3** Explore a range of items – talk about why we use the products and who would use the products. Sort instructions into the correct order. Act out making a product. Make 'How to' videos. Write sets of instructions. Make class lists of what makes a product successful e.g what makes ipads great? Make a list for the intended product. Explore inventors such as Dyson, Wright Brothers etc Bring in existing products. Evaluate why these products are successful Research inventors, designers, engineers, chefs and manufacturers. Make fact sheets, videos, give speeches to each other about them. Look at packaging of products. Match the symbols to their meanings. Complete a survey of the products at home. Create diagrams when designing a pie, a chariot and a piece of coloured clothing. When completing diagrams, annotate each material choice. Sorting activities, which material could be used a given product? Why or why not? **Year 4** Explore a range of products. What is the purpose for each product? E.g types of lamp and lantern Create diagrams when designing a rainforest product and a lantern. When completing diagrams, annotate each material choice. Sorting activities, which material could be used a given product? Why or why not? Add annotations in a different colour to show any changes decided whilst making the product. Complete an evaluation of each product produced. Compete peer assessment to support this. Complete a group meeting when planning each product shared each other's ideas about the planned designs. Adjust as appropriate. Research inventors, designers, engineers, chefs and manufacturers. Make fact sheets, videos, give speeches to each other about them.	**Year 5** Create plans in a range of ways/steps – discuss ideas in groups, draw plans, make mock ups and prototypes Research similarities and differences of existing products. How have some products been changed to develop them from others? How do we know how to use the products? What makes the product attractive to the consumer? Research finishing techniques of the chosen products. Consider colour, shape size etc. Work together to make a list of design specification that may have been given for existing products. Then create a list for their product. Perhaps provide a list for them to decide if the specification is needed or not. Research inventors, designers, engineers, chefs and manufacturers and how they developed their ideas. E.g Dyson and the Wright Brothers. Test out materials in FPT. Provide an array of suitable and not so suitable items so that the children are making independent choices. Create a price for each item/tool given so that the children can calculate the cost of their products. **Year 6** Create plans in a range of ways/steps – discuss ideas in groups, draw plans, make mock ups and prototypes Research similarities and differences of existing products. How have some products been changed to develop them from others? How do we know how to use the products? What makes the product attractive to the consumer? Research finishing techniques of the chosen products. Consider colour, shape size etc. Work together to make a list of design specification that may have been given for existing products. Then create a list for their product. Perhaps provide a list for them to decide if the specification is needed or not. Create a price for each item/tool given so that the children can calculate the cost of their products. Sort pictures in order of instruction steps. Act of making products. Write sets of instructions. Provide given points to evaluate how the making of their product is going. Peer assess/chare ideas with each other.

Working with tools, equipment, materials and components to make quality products	**Year 1** Making a toy car Making bunting Making a cardboard mini golf course Making a puppet **Year 2** Making a cardboard mini golf course Making a puppet	**Year 3** Making a pie. Making a model chariot. Making a piece of coloured clothing. Exploring toys with mechanics, levers and linkages and pneumatic systems. **Year 4** Making a textile to tell a story. Making a rainforest cookie. Making a lantern.	**Year 5** Making a 'Make and mend' product. Making a shaduf. Making a snack bar. **Year 6** Making a fairground ride. Making a Greek meze.

Evaluating processes and products	**Year 1** Explore, discuss and evaluate gingerbread, toy cars and bunting. Build sentences 'I like this product because…' and 'I do not like this product because…' When working on their product stop at certain points to allow the children to reflect on how things are going. If a design choice is changed ask the children to note the change and the reason for the change. **Year 2** When working on their product stop at certain points to allow the children to reflect on how things are going. If a design choice is changed ask the children to note the change and the reason for the change. Create a class criterion for a successful product. Check their product against this criterion once they have completed their design.	**Year 3** Bring in, explore and evaluate pies, wheeled toys and coloured clothing. Disassemble wheeled toys and coloured clothing. Research achievements of given individuals – How has their work changed the world? **Year 4** Link to the tests completed on 'The Rocket'. Compile a list of tests/checks that will be completed after the product is made. Give children given points to evaluate how their work is going. Children should annotate in a given colour on their designs and plans to show the reflection and changes made. Disassemble lanterns/lamps.	**Year 5** Annotate/make comments in a journal during the making process comparing the current product to the design. Give children given points to evaluate how their work is going. Children should annotate in a given colour on their designs and plans to show the reflection and changes made. Give children given points to evaluate how their work is going. Children should annotate in a given colour on their designs and plans to show the reflection and changes made. Research inventors, designers, engineers, chefs and manufacturers and how they developed their ideas. E.g Dyson and the Wright Brothers. Test out materials in FPT. Compile a list of tests/checks that will be completed after the product is made. **Year 6** Give children given points to evaluate how their work is going. Children should annotate in a given colour on their designs and plans to show the reflection and changes made. Research inventors, designers, engineers, chefs and manufacturers and how they developed their ideas. E.g Dyson and the Wright Brothers. Test out materials in FPT. Compile a list of tests/checks that will be completed after the product is made. Give children given points to evaluate how their work is going. Children should annotate in a given colour on their designs and plans to show the reflection and changes made. Annotate/make comments in a journal during the making process comparing the current product to the design. Work together to make a list of design specification that may have been given for existing products. Then create a list for their product. Perhaps provide a list for them to decide if the specification is needed or not. Annotate/make comments in a journal during the making process comparing the current product to the design.

Cooking and Nutrition	**Year 1** Matching food to the plant or place that It comes from. Matching meat and animal products from the animal it comes from. Research the source of food e.g link to Harvest Sort food by group Create a healthy meal/menu Harvest songs Explore ways fruit and vegetables help the body Sort fruit and vegetables Keep a fruit and vegetable diary Making gingerbread dough Making pizzas **Year 2** Making gingerbread dough Making pizzas Matching food to the plant or place that It comes from. Matching meat and animal products from the animal it comes from. Research the source of food e.g link to Harvest Sort food by group Create a healthy meal/menu Harvest songs Explore ways fruit and vegetables help the body Sort fruit and vegetables Keep a fruit and vegetable diary Making pizzas.	**Year 3** Sorting food into its source. Writing explanations. Making pies. Sorting food into food groups. Writing explanations. Designing a menu/meal. Make a healthy eating leaflet/menu. Describe/sort which food and drinks are healthy and which provide energy. **Year 4** Sorting food into its source. Writing explanations. Making cookies.	**Year 5 and Year 6** Sorting food into its source. Writing explanations. Links to Harvest. Researching imports and exports. Sorting food into its source. Researching products e.g how wheat becomes flour. Making a snack bar/Greek Meze. Research the ingredients in snack bars. Research the ingredients in a Greek Meze. Link to the Eat Well plate.