

Design and Technology Progression of Skills

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Overview of aims	<p><u>Design:</u> 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</p> <p><u>Make</u> select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <p><u>Evaluate</u> explore and evaluate a range of existing products evaluate their ideas and products against design criteria</p> <p><u>Technical knowledge</u> build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p><u>Cooking and nutrition</u> use the basic principles of a healthy and varied diet to prepare dishes ☑ understand where food comes from.</p>	<p><u>Design</u> 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</p> <p><u>Make</u> select from and use a wider range of tools and equipment to perform practical tasks [for example, 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</p> <p><u>Evaluate</u> 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</p> <p><u>Technical knowledge</u> apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] apply their understanding of computing to program, monitor and control their products.</p> <p><u>Cooking and nutrition</u> understand and apply the principles of a healthy and varied diet prepare and cook a variety of predominantly savory dishes using a range of cooking techniques understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	

Links to Park LTP	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p style="text-align: center;">Developing, planning and communicating ideas</p>	<ul style="list-style-type: none"> • Begin to draw on their own experience to help generate ideas and research conducted on criteria. • Begin to understand the development of existing products: Explain what they are for, how they work, what materials have been 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 criterion. • Begin to develop their ideas through talk and simple drawings. Make templates and mock ups of their ideas in card and paper or using ICT (if relevant) Communicate with others about how they want to construct their product Explain how they intend to fix simple materials 	<ul style="list-style-type: none"> • 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 design criterion. • 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 (if relevant) • Begin to explain why they chose a certain material • Develop their own ideas from given starting points 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Start to generate ideas, 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 products. 	<ul style="list-style-type: none"> • Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes 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 	<ul style="list-style-type: none"> • 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 with Mathematics and Science. • Plan the order of their work, choosing appropriate materials, tools and techniques. • Suggest alternative methods of making if the first attempts

			<p>function and aesthetics.</p> <ul style="list-style-type: none"> • Put together a step-by-step plan which shows the order and also what equipment and tools they need. 	<ul style="list-style-type: none"> • When planning explains their choice of materials and components according to function and aesthetic. • Take account of the ideas of others when designing • Produce a plan and explain it to others • Consider how to present their product in an interesting way. 	<p>developing design ideas.</p> <ul style="list-style-type: none"> • 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 intended purpose. • Produce a range of ideas after collecting information • Produce a detailed step-bystep plan • Suggest some alternative plans and say what the good points and drawbacks are about each • Explain how their product will appeal to the audience 	<p>fail. Identify the strengths and areas for development in their ideas and products.</p> <ul style="list-style-type: none"> • Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose. • Use market research to inform plans • Follow and refine their initial plan if necessary • Convincingly justify their plan to someone else • Show consideration to culture and society in a design • Explain how their product should be stored justifying with reasons • Suggest ideas about how their product could be sold • Work within a given budget.
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<p>Working with tools, equipment, materials and components to make quality products</p>	<ul style="list-style-type: none"> • Begin to make their design using appropriate techniques. • Begin to build structures, exploring how they can be made stronger, stiffer and more stable. • Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. • Identify and talk about products which use electricity to make them work • 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 	<ul style="list-style-type: none"> • 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 – e.g. a pop up card • Demonstrate how to cut, shape and join fabric to make a simple product. • Use basic sewing techniques. • Start to choose and use appropriate finishing techniques based on own ideas. • Select the best tools and materials • Be able to join things (materials/ components) together in different ways • Measure materials to use in a model or structure. 	<ul style="list-style-type: none"> • Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components. • Explain their choice of tools and equipment in relation to the skills and techniques they will be using. • Start to understand that mechanical and electrical systems have an input, process and output. • Start to understand that pneumatic systems create movement. • Know how simple electrical circuits and components can be used to create functional products. • Measure, mark out, cut, score and assemble 	<ul style="list-style-type: none"> • 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. • Start to understand how mechanical systems such as levers, or linkages create movement. • Understand how more complex electrical circuits and components can be used to create functional products. • Continue to learn how to program a computer to monitor changes in the environment and control their products. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 to achieve a quality product. • With confidence pin, sew and stitch materials together to create a product. • Demonstrate when make modifications as they go along. • Construct products using permanent joining techniques. • Understand how mechanical systems such as cams or pulleys or gears create movement. • Know how more complex
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	<p>methods e.g. glues or masking tape.</p> <ul style="list-style-type: none"> • Begin to use simple finishing techniques to improve the appearance of their product. • Make a product which moves • Attempt to make their model stronger if it needs to be • Select appropriate resources and tools for their building projects 	<ul style="list-style-type: none"> • Create working circuits to light a bulb or work a buzzer • Attach features to a vehicle (e.g. an axel and wheels) • Join fabric using a running stitch, glue and tape. 	<p>components with more accuracy.</p> <ul style="list-style-type: none"> • Start to work safely and accurately with a range of equipment • 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. • Use equipment safely • Attempt to make sure that their product looks attractive • Make choices of material both for its appearance and qualities • Select the most appropriate tools and techniques to use for a given task • Make a product which uses both electrical and mechanical components • Work accurately to make cuts and 	<ul style="list-style-type: none"> • Understand how to reinforce and strengthen a 3D framework. • Now sew and weave using a range of different stitches. • Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy. • Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT. • Measure carefully and show initiative to check so as not to make mistakes • Persevere with their product even though their original idea might not have worked • Build a model which incorporates a motor • Use a glue gun with close supervision (one to one) 	<ul style="list-style-type: none"> • 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. • Use a range of tools and equipment expertly • Make up a prototype first • Measurement accurately to ensure that everything is precise • Demonstrate motivation/perseverance to refine and improve their products • Create a 3D product using a range of materials and sewing techniques • Use a glue gun with close supervision • Incorporate switches to turn on and off into 	<p>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.</p> <ul style="list-style-type: none"> • 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 • Combine fabric to make a high quality product for a purpose • Use a craft knife, cutting mat and safety ruler with
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			<p>holes – e.g. to measure and then use equipment to cut.</p> <ul style="list-style-type: none">• Try alternative ways of fixing something if the first attempt is not successful• Join fabrics using a running stitch• Build models incorporating circuits with buzzers and bulbs	<ul style="list-style-type: none">• Create a more complex pop up (e.g. card)• Use a simple pattern to create an item of clothing	models made	<p>close supervision (one to one)</p> <ul style="list-style-type: none">• Make decisions and select the most appropriate mechanical system for a particular purpose
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<p>Evaluating process and products</p>	<ul style="list-style-type: none"> • 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 the Products and why. • Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make next time. 	<ul style="list-style-type: none"> • Evaluate their work against their 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 what went well and possible changes they might make next time. • With confidence talk about their ideas 	<ul style="list-style-type: none"> • Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose • Suggest some improvements and say what was good and not so good about their original design • Begin to disassemble and evaluate familiar products and consider the views of others to improve them. • Begin to evaluate how the key designs of individuals in design and technology have helped shape the world. 	<ul style="list-style-type: none"> • Evaluate their work both during and at the end of the assignment. • Evaluate their products carrying out appropriate tests. • Be able to disassemble and evaluate familiar products and consider the views of others to improve them. • Evaluate how the key designs of individuals in design and technology have helped shape the world. • Suggest some improvements and say what was good and not so good about their original design • Begin to explain how they can improve their original designs • Evaluate their product, thinking of both appearance and the way it works 	<ul style="list-style-type: none"> • 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 seek evaluation from others. • Evaluate how the key designs of individuals in design and technology have helped shape the world. • Evaluate appearance and function against original criteria 	<ul style="list-style-type: none"> • 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 original criteria and suggest ways that their product could be improved. • Evaluate how the key designs of individuals in design and technology have helped shape the world. • Test and evaluate their final product • Evaluate if their product meets all design criteria • Justify why they selected specific materials
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<p style="text-align: center;">Food and Nutrition</p>	<ul style="list-style-type: none"> • Begin to understand that all food comes from plants or animals. • Explore common food sources • (e.g. from food or animals) • Start to understand how to name and sort foods into the five groups in (e.g. could use the 'The Eat well plate') • Know that everyone should eat at least five portions of fruit and vegetables every day (check current guidelines!) • 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. • Measure and weigh food items using non-standard measures • (e.g. spoons and cups) 	<ul style="list-style-type: none"> • Understand that all food comes from plants or animals. • Develop understanding of where different foods come from (e.g. foods which are farmed, grown elsewhere (e.g. home) or caught) and also food from native to different countries. • Understand how to name and sort foods into the five groups in (e.g. could use the 'The Eat well plate') • Know that everyone should eat at least five portions of fruit and vegetables every day (check current guidelines!) • Recognise the need for a variety of food in a diet • 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 • Make dishes from other countries (if relevant to learning theme) 	<ul style="list-style-type: none"> • 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 dishes including experience of using a heat source. • Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Know how a healthy diet is made up from a variety and balance of different food and drink • Begin to know that to be active and healthy, food and drink are needed to provide energy for the body (and begin to distinguish healthy high energy foods) • Be able to identify foods which come 	<ul style="list-style-type: none"> • 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 including experience of using a heat source. • Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Measure and weigh ingredients appropriately • Explain why a healthy diet is important • Know that to be active and healthy, food and drink are needed to provide energy for the body and identify healthy high energy foods) 	<ul style="list-style-type: none"> • 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 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 including the use of a heat source • Demonstrate increasing confidence in how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Evaluate a meal and consider if they 	<ul style="list-style-type: none"> • Explain how ingredients were grown, reared and caught. • Understand that seasons may affect the food available. • Explain 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 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 contain different substances (nutrients, water and fibre) that are needed for health.
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			from the UK and other countries in the world	<ul style="list-style-type: none">• Understand what to do to be hygienic and safe• Become familiar with some of the processes that foods go through to preserve them/make them more appealing.	<ul style="list-style-type: none">• contribute towards a balanced diet• Begin to understand that different food and drink contain different substances (nutrients, water and fibre) that are needed for health• Explain what times of year particular foods are eaten in• Describe what to do to be hygienic and safe• Use appropriate tools and equipment, weighing and measuring with scales.	<ul style="list-style-type: none">• Use appropriate tools and equipment, weighing and measuring with scales.• Plan a healthy and affordable diet
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