West Green Primary Design and Technology Progression

	Early Years Skills	Reception	KS1 Skills	Year 1	Year 2	KS2 Skills	Year 3	Year 4	Year 5	Year 6
Technical Knowledge	Explore materials freely, to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Respond to new experiences that you bring to their attention.	Explore a range of materials and resources, in different contexts, beginning to understand how they can be used. (Through own explorations and structured sessions). Explore the shapes of resources, beginning to make choices about their use and suitability. Express their ideas through exploration. With adult help, or through their own ideas, think about how to adapt their models and structures, and what might be a more suitable choice. Begin to use the ideas or	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.	Begin to describe the features and purposes of structures. Develop awareness of different structures for different purposes. Begin to understand what a stable structure means. Begin to understand the shape or type of material can improve the strength of structures. Explore the purpose and use of levers and pivots, including wheel mechanisms to make parts turn in circles.	Identify natural and man-made structures Identify when a structure is more or less stable than another. Understand that the material used and shape of a structure affects its strength. Use the vocabulary: strength, stiffness and stability. Know that materials can be manipulated to improve strength and stiffness, including types of joins, including when sewing. Know that shapes and structures with wide, flat bases, are the most stable. Explore the purpose and use of axels, chassis and wheels.	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.	Build a strong and stiff structure by folding paper. Understand how concrete is versatile and helps to make structures more stable. Explore the strength and suitability of different mod-roc structures. Explore and understand how waterproofing can add strength to products. Use and select the most appropriate levers, pivots, flaps, wheel mechanisms, pop outs etc. when designing and making, and know how these joins together to make parts move.	Understand the difference between a frame and shell structure. Explore and understand how cladding is used on different structures. Begin to explore a range of working circuits and how these can be used in products. Consider effective and ineffective designs, using their knowledge of shape and materials to aid choices. Extend knowledge of wide and flat based objects are more stable. Use what they know about materials and how they can be	Understand the terminology of strut, tie, pillars, span and beam. Begin to articulate the difference between beam, arch, truss and suspension bridges. Explore how to create a strong beam Identify arch and beam bridges and understanding the terms: compression and tension. Identify stronger and weaker structures. Find different ways to reinforce structures Understand how triangles can be used to reinforce bridges.	Know that structures can be strengthened by manipulating materials and shapes. Understand how structures are put together and strengthened, by drawing diagrams. Identify frame and shell structures in everyday life, and implement this knowledge. Use previous knowledge and build on how computers and programs are used in simple and more complex products. Learn and understand how prototypes help us to visualise, spot problems, find solutions,

		experiences presented to them in their designs, explorations and model building.						manipulated to improve strength and stiffness, including different and more complex types of joins, including when sewing. Investigate and understand how computers can be used to program and control lights.	Explore a range of cogs, levers, pulleys and gears, looking at how these can be combined to make more complex structures and movements. Build on and use more complex joins and sewing techniques when joining materials.	explain and inspire.
Design	Explore materials freely, to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Plan and think ahead about how they will explore or make. Make imaginative and complex 'small worlds'	Through their exploration and guided sessions, explore a range of materials and resources to make decisions about how to use them. With guidance, think about which resources, materials or shapes, might be a better choice when designing. Begin to talk about their plans before they make their ideas,	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.	Begin to use existing products to support their designing. Begin to learn the importance of a clear design criteria, using one given to them or made together. Begin to make simple sketches and drawings to communicate their ideas, with some guidance. Begin to include individual	Use existing products to support their designing. Understand the importance of a design criteria, creating one together, and beginning to use it more independently in their designs. Make simple sketches and models to communicate their ideas, beginning to think about how the product will function and be appealing to others.	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.	Create a design criterion together, following and using this and research when designing. Begin to design to appeal to a specific person/ purpose. Use discussion, annotated sketches and simple prototypes to communicate and generate their ideas when designing a product. Begin to understand	Use research to support designing, where functional and appealing aspects are considered, linking to a specific purpose and audience. Add to a simple design criterion, and include all criterion when designing. Design an end product that is aesthetically	Design an end product that is functional and appealing, that is fit for a certain purpose, showing strength and stability. Design a stable structure that is able to support weight Include templates and pattern pieces when designing, thinking about how they will fit together	Use research to draw detailed diagrams, to then aid their own designs. Consider how structures will be used, considering effective and ineffective designs. Write a detailed design criterion. Design for a specific audience, with function and appearance in mind. Make design plans in a range of ways, with detail and

	with blocks and construction kits.	with some simple drawings or labels, if appropriate. Begin to make more complex construction models and small world creations, discussing and negotiating how to build them.		preferences and requirements in a design. Explore a range of materials, using what they know about their shape and stability to make decisions, based on an end product.	Be able to apply their own preferences and knowledge to their designs. Use what they know about materials and shapes to make decisions on what to use.		how to use fonts and graphics in their designs.	pleasing, selecting materials to create a desired effect. With more detail, use discussion, annotated sketches and simple prototypes to communicate and generate their ideas when designing a product. Begin to explore templates and how these aid designs. Begin to build frame structures designed with stability and function in mind.	and be fit for purpose. Create frame structure with triangulation. Make detailed sketches, cross sectional diagrams, prototypes and discussions to communicate their plans and ideas, when designing. When using prototypes, begin to think about what works and what doesn't, making changes to plans.	careful measurements, drawing on previous knowledge of sketches, discussions, prototypes, cross sectional diagrams etc.
Make	Safely use and explore a variety of materials, tools and techniques, experimenting with design, form and function. Return to and build on their previous	Through their explorations and guided sessions, explore different types of materials and resources to make their ideas. Learn and/or demonstrate how to use	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	Begin to follow instructions, using their design, to cut, assemble and decorate a structure or product. Where appropriate, use pre-made templates to	Follow instructions more independently, using their design more accurately, to cut, assemble and decorate a structure or product. Use pre-made templates more accurately when marking out.	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	Make a structure or product according to an agreed design criterion, to cut, assemble and decorate more accurately. Begin to make lever and	Make a more accurate structure or product, to an agreed design criterion, ensuring all points are included, to cut, assemble and decorate. Make a variety of free-	Make a range of different shaped beam bridges, including triangles to create truss bridges that span a given distance and supports a load.	Make a range of structures and products, drawing upon new and prior knowledge, following plans and design criteria accurately. Measure, mark and cut materials

	learning, refining ideas and developing their ability to represent them.	equipment safely, with some support. Begin to think about how to join materials and resources together, using guidance as to which might be stronger and more secure (glue, tape etc.) With adult support, look at how they can build on their creations, or make changes if they are to repeat them.	materials and components, including construction materials, textiles and ingredients, according to their characteristics.	support their making. Begin to think about the order of tasks, to aid their making. Make a stable structure from card, glue and tape. Begin to add detail and decoration, specific to what they are making.	Create joints and structures from a range of given materials. Make functioning axels which are assembled in to a main supporting structure. Make a stable structure from a wider range of materials. Learn how to do a running and over stitch. Add detail and decoration specific to what they are making.	components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.	linkage systems independently, with some careful measurements. Begin to make choices about which materials to use, based on their function and properties. Begin to make neater and more secure joins. Begin to create special features for individual designs.	standing frame structures of different shapes and sizes. Select appropriate materials to build a strong structure and for the cladding. Begin to reinforce corners to strengthen a structure. Learn to create different textual effects with materials, making own choices about detail and decoration.	Make a structure or product, following an individual or group design criteria. Begin to accurately measure and mark different materials, including the use of pattern pieces. Select appropriate tools and equipment for a particular task. Use the correct techniques safely. Identify where a structure needs reinforcement. Learn how to do whip and back stitch, understanding how to make hems.	accurately, to create a range of structures or products. Use a range of materials to reinforce and add decoration to structures. Make a product that functions accurately. Make changes as they are making, if required. Use a range of computing equipment to make programs.
Evaluate	Share their creations, explaining the process they have used. Return to and build on their	Talk about what they have made and what it does. With guidance, talk	Explore and evaluate a range of existing products. Evaluate their ideas and	With guidance, explore a range of existing products, discussing what they	With more independence, explore a range of existing products, discussing what is appealing and how they work.	Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design	Investigate a range of existing products or inventions, beginning to analyse them in more detail.	Investigate a wider range of existing products, analysing their design in more detail.	Investigate and analyse a range of existing products, to support them in writing a	Investigate and analyse a wider range of existing products, to support and justify

	previous learning, refining ideas and developing their ability to represent them. Review their progress as they try to achieve a goal. Check how well they are doing.	about how they made their creations, and why they chose certain materials or ways of joining. With support, make changes to their creations, or think about how they might change them if they were to repeat them. Begin to know when to ask for help, beginning to change their approach if something isn't working.	products against design criteria.	notice/how they work/what they are made from. With an adult, begin to evaluate using the design criteria. With adult support, look at whether the structure is strong and stable. Make some simple suggestions for improvement and making some alterations.	With more independence, evaluate according to the design criteria. Make decisions with others on how to test the strength of their own structures, beginning to evaluate the strength, stiffness and stability of own structure. Make more suggestions for improvement and making some alterations.	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.	Evaluate own work and that of others based on the design criteria and their design. Suggest points for modification of designs and begin to make simple alterations. Understand the impact of inventions on our lives, and how they have impacted computing, structures and transport.	Evaluate structures made by the class, based on the design criteria and their own design. Describe what made the structure or product most effective. Consider effective and ineffective designs, using this knowledge to discuss changes they would make. Begin to identify the weakest part of a structure. Learn that architects or designers consider light, shadow and patterns when designing.	design criterion, and when designing. Adapt and improve own structures or products by identifying weakness and reinforcing them as necessary throughout the making process. Suggest points for improvement for own structures and products, as well as those designed by others, based on continual analysis of ineffective and effective designs. Build on their knowledge of how inventions and designs have impacted our lives and what we can learn from these.	decisions and choices. Improve a design plan based on peer evaluation and prior knowledge of effective and ineffective designs. Test and adapt a design to improve it as it's developed. Identify what makes a successful structure. Understand the role of computer engineers and how they create, embed and debug systems.
Cooking and Nutrition	Know and talk about the different factors that support their overall health	Begin to understand what a healthy diet is, and why it is important,	Use the basic principles of a healthy and varied diet to prepare dishes.	Build on their knowledge of the importance of fruit and vegetables	Use what they know to create a 'balanced plate', and when designing a balanced meal,	Use the basic principles of a healthy and varied diet to prepare dishes.	Understand what seasonal food is in Britain and how we can get certain			Using the same type of food, compare the nutritional value, thinking about which

	and wellbeing. Understand the importance of healthy food choices. Talk about the differences between materials and the changes they notice. *(This will also link to PSED and PD, looking at teeth, sleep, exercise etc.)*	with adult guidance. Sort 'healthy' and 'unhealthy' food. Begin to understand the importance of washing hands and why we do this. Work with an adult to begin to understand how to cut food safely. When cooking, begin to talk about how food changes when it is heated or cooled *(e.g. pancakes, fairy cakes, chocolate etc.)*	Understand where food comes from.	and why they are important. Begin to understand and design a balanced plate/meal. Build on their knowledge of how to handle and prepare food, in a safe and hygienic way. Be able to talk about where fruit and vegetables come from.	talking about the importance of food from each food group. When designing meals, begin to make choices of which food/type of food will be more suitable e.g. base for a pizza. Be able to talk about where more categories of food come from/how they are made. With more independence, work hygienically and safely, when preparing food.	Understand where food comes from.	foods all year round (from overseas). Understand why fruits, vegetables, meat, fish and plant-based options, are an important part of a healthy and varied diet. (Linking to fibre, minerals and vitamins). Understand the versatility of some food. Use their knowledge to design a balanced meal/menu, using seasonal food. Make a variety of dishes, based on different food groups. Prepare and work hygienically and safely when preparing food.			ones are a healthier option, e.g. different burgers. Use what they have learnt to adapt existing products to make them a healthier, more nutritional option. Use their knowledge of where food comes from and its seasonal availability, when designing and making dishes/menus. Build on how different food groups are part of a healthy and varied diet (linking to carbohydrates, fats, proteins, calories etc.) Explore different ways of cooking the same dish, e.g. burger patties, and which taste or look better, as well as which ones are healthier

										cooking methods. Design, prepare and make dishes, based on different food groups, thinking about healthier options and nutritional value. Explore the suitability and stability of products, e.g. burger buns, when designing and making food, also considering dietary needs and nutritional value. Know how to prepare and work hygienically and safely, including preparing food for different dietary needs.