



Subject: Design and Technology
 Progression in Knowledge and Skills

Food and nutrition		
	Key knowledge	Key skills
EYFS	<ul style="list-style-type: none"> • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and <u>understanding the importance of healthy food choices.</u> 	<ul style="list-style-type: none"> •
Y1	<ul style="list-style-type: none"> • Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Hygiene means to keep things clean. Washing hands before touching food is important. • Know that a knife can be used to chop fruits and vegetables. A vegetable peeler is used to remove skin on the fruit or vegetable before eating. • Know that there are five groups of the 'Eat Well Plate'. • Know that they should only use knives and peelers given to them by an adult. Make sure an adult is with them at all times to make sure you are safe. • Understand that a dish is healthy because you included fruit. 	<ul style="list-style-type: none"> • Begin to organise foods into the five groups of the 'Eat Well Plate'. • Work with others to design and prepare a healthy dish, without a heat source. • Cut and chop a range of ingredients. • Work safely and hygienically.

Y2	<ul style="list-style-type: none"> • Know that food has to be farmed, grown elsewhere e.g. home or caught. • Know that the 5 groups of the 'Eat well plate' are fruits and vegetables, dairy, fats and sugars, meat fish nuts and eggs, grains cereals and potatoes. • Know that everyone should eat at least five portions of fruit and vegetables every day. • Chopping is cutting food into small pieces or slices. Grating is shredding a food into smaller parts using a grater. • Know that washing hands and food removes dirt and germs that could make you ill. • Know a portion is the size of your palm. • Discuss what you like about your dish and how you could improve it next time. 	<ul style="list-style-type: none"> • Organise foods into the five groups of the 'Eat Well Plate'. • Describe the basic principles of a healthy diet. • Design and prepare a healthy dish. • Use techniques such including cutting, peeling grating and chopping. • Work safely and hygienically.
Y3	<ul style="list-style-type: none"> • Understand that a healthy diet is made up by a variety and balance of foods and drinks, as depicted in 'The Eat Well Plate' • Know that grown means food that is produced from plants, reared means when animals are bred for their meat or milk and caught means when animals are captured in order for humans to eat. • Understand that fresh food is sourced recently while processed food has been sourced a while ago and been treated with additives to make it last longer. • Know to use tools and heat source safely under the supervision of an adult. Know that they should always follow instructions to stay safe. • Use a larger portion of vegetables and grain, smaller portions of salt, fats and sugars should be used to keep the dish healthy. • Know to only use a heat source when there is an adult present. Never touch the heat source with your hand. 	<ul style="list-style-type: none"> • Prepare and cook predominantly savoury dishes using a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Design a healthy plate of food linked to the categories on 'The Eat Well Plate'.

	<ul style="list-style-type: none"> • Discuss what you like about your dish and how you could improve it next time. 	
Y4	<ul style="list-style-type: none"> • Know that to be active and healthy, food and drink are needed to provide energy for the body. • Know the correct portion sizes are: Meat – the size of your palm. Poultry/fish - the size of your hand. Vegetables – a cupped handful. Carbohydrates (potato, rice, pasta etc) – a handful. Fruit – a handful • Know that Souvlaki (meat and vegetable kebabs), seafood and Tomatokeftedes (Fried Tomato Balls) are popular cooked Grecian dishes. • Know that in the UK lots of root vegetables are grown such as carrots and potatoes. Sheep, pigs and cows are reared for meat and dairy products. • Know Greece produce lots of olives which can be used for olive oil. They also rear goats for their meat and milk in order to make feta cheese. • Understand that seafood, yoghurts and cheese such as feta, olives and olive oil, tomatoes and pulses are popular ingredients in Grecian dishes. • Know that refine means to improve. This could be by adding/reducing ingredient quantities or adding seasoning. • Explain techniques you used and reasons for changes. Were these changes successful and why? 	<ul style="list-style-type: none"> • Prepare and cook a variety of predominantly savoury dishes safely and hygienically. • use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.
Y5	<ul style="list-style-type: none"> • Know that seasonality relates to what time of year/season a product is grown. • Understand that traditional Maya foods are corn, squash, beans, chilli, avocado, sweet potatoes and a variety of fruits. 	<ul style="list-style-type: none"> • Prepare and cook a variety of predominantly savoury dishes safely and hygienically. • use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Use utensils and equipment including heat sources to prepare and cook food.

	<ul style="list-style-type: none"> • Know that mixing means to combine ingredients together. Kneading means to work the dough to give it a good texture Baking means to cook usually in an oven. • Know that fibre helps the digestive system to move food through the intestines and push the waste material out of the body. • Identify what food types from the eatwell plate are included in your dish from fruits and vegetables, dairy, fats and sugars, meat fish nuts and eggs, grains cereals and potatoes. • Identify if you need to improve kneading skills, baking, mixing of appropriate ingredients. • Understand how food is processed into ingredients that can be eaten or used in cooking. • Begin to understand that different food and drink contain different substances, (nutrients, water and fibre – that are needed for health.) 	<ul style="list-style-type: none"> • Join and combine a widening range of ingredients. • Select and prepare foods for a particular purpose.
Y6	<ul style="list-style-type: none"> • Know that savoury food is either salty or spicy rather than sweet. Sweet food contains sugar as a key ingredient. • Fresh food is sourced recently while processed food has been sourced a while ago and been treated with additives to make it last longer. • Food tastes much better when it's grown in its natural season, it is also better for the environment. • Fruit and vegetables contain vitamins, minerals and fibre Carbohydrates are a good source of energy Protein is full of vitamins and minerals that are good for your muscles Dairy contains calcium for healthy teeth and bones 	<ul style="list-style-type: none"> • Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques safely and hygienically. • use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Choose ingredients to support healthy eating choices when designing their food products. • Use utensils and equipment including heat sources to prepare and cook food.

	<p>Fats and sugars are high in energy and should be used in moderation.</p> <ul style="list-style-type: none"> • Milks, syrups and spices are commonly used in South African deserts. • Mixing and kneading would be required to make the sweet pastry base. Combining key ingredients and chosen flavours for the filling. • Discuss skills and techniques learnt throughout the unit. 	
Mechanisms		
Y1	<ul style="list-style-type: none"> • Know a mechanism is a set of moving parts that move together to make something happen (like moving part of a picture). • Know that a slider is a mechanism that slides part of a picture across or upwards, making it look like it's moving. A lever is a rigid bar resting on a pivot, used to move one end when pressure is applied to the other . • Understand that a mechanism can be strengthened using strong card or lollypop sticks to keep it strong. • Know that the criteria is what you want your design to include. • Know that the criteria for the project is to have either a sliding or lever mechanism. A strong mechanism. A clear picture that moves when the mechanism is used. • Know how to make a slider or lever mechanism. • Know how to strengthen or stiffen the mechanism. 	<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: What they are for, how they work, materials used. • Begin to develop their ideas through talk and drawings. • Make templates and mock ups of their ideas in card and paper or using ICT. • Begin to make their design using appropriate techniques. • Explore and use mechanisms [for example, levers, sliders], in their products. • With help measure, mark out, cut and shape a range of materials. • Begin to build structures, exploring how they can be made stronger, stiffer and more stable. • Evaluate their work and discuss ways that are effective and ways that it could be improved.
Y3	<ul style="list-style-type: none"> • Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. • Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement. 	<ul style="list-style-type: none"> • Begin to use woodwork tools within the design. • 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.

	<ul style="list-style-type: none"> • Know that sliding and lever are different types of mechanisms. • Know that Egyptian chariots were invented around 2000BC. The automobile was invented by Karl Benz. • Know that a fixed pivot does not move, something turns or rotates around it. A loose pivot, it is the pivot itself that turns or rotates. • Know that the key parts of a chariot are the chassis, wheels and axel. The wheels must be attached to the axel with fixed pivots. • Know that to safely and effectively cut wooden dowel you would need a clamp, safety glasses and a hack saw. 	<ul style="list-style-type: none"> • Understand how well products have been designed, made, what materials have been used and the construction technique. • Make drawings with labels when designing. • When planning, explain their choice of materials and components including function and aesthetics. • Select a wider range of <u>woodwork</u> tools and techniques for making their product. • Measure, mark out, cut, score and assemble components with more accuracy. • Start to work safely and accurately with a range of simple <u>woodwork tools</u>. • 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 evaluate their product against original design criteria <i>e.g. how well it meets its intended purpose</i>.
Y5	<ul style="list-style-type: none"> • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know that loose pivots can be found on balance scales and fixed pivots can be found on scissors and where wheels are attached to a bike. • Understand that for products to move and give an output motion, a force or an input motion is required. Squeezing the scissor handles provides the input motion, which pushes the blades together, and the output motion is the blades cutting the material. Forces don't just push - they can twist or pull as well. • Know that before using a hacksaw, put on safety goggles to protect your eyes and roll your sleeves up to help protect your clothing from damage. 	<ul style="list-style-type: none"> • Continue to develop on woodwork skills • Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. • With growing confidence select appropriate materials, tools and techniques. • Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately. • Begin to measure and mark out more accurately. • Demonstrate how to use skills in using different woodwork tools and equipment safely and accurately with growing confidence cut and join with accuracy to ensure a good-quality finish to the product. • Evaluate their work both during and at the end of the assignment.

	<ul style="list-style-type: none"> • Know to tie up hair if it is long and remove any loose clothing which may also get caught when sawing. • Identify that the criteria is that it must move independently and on rough terrain. • Know that movement can be created by using a series circuit that includes a motor. • Use technical vocabulary to explain what worked with your product and what you would need to improve. 	
Y6	<ul style="list-style-type: none"> • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • CAD can be used to see a design from different angles. • Know that loose pivots can be found on balance scales and fixed pivots can be found on scissors and where wheels are attached to a bike. • Know that a cam is a mechanism that converts rotary motion (movement going round) into linear motion (movement going up and down). • Understand that because a cam is not a circle, as it turns, it pushes the object resting on it up and down. • Know that cams work best with wooden dowel and the mechanism can be contained in a wooden frame. • Know that the criteria is a toy suitable for a child aged 5-9 The use of at least 1 cam to make an object move. • Use key vocabulary to explain changes and refinements you made during the make. 	<ul style="list-style-type: none"> • Confidently use woodwork skills • Can research ideas about different animals to inform their design • can explain how simple cam mechanisms work. • Can make a simple mechanism to help me understand cams. • Select a wider range of woodwork tools and techniques for making their product. • Can build a framework accurately using a wider range of tools and equipment. • Work safely and accurately with a range of simple woodwork 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. • Can evaluate their product against original design criteria e.g. how well it meets its intended purpose.
Textiles		

EYFS		<ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories.
Y1	<ul style="list-style-type: none"> • Begin to understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to identify a target group for what they intend to design and make based on a design criteria. • Explore different finishing techniques • Know that people can take part in a story by role playing or using puppets to play the characters from the story. • Know that fabric is a softer and more flexible material to use for hand puppets. • Begin to understand that you can join 2 pieces of fabric together using running stitch, glue or stapling. • Begin to understand that a template is a pattern made from paper or card used to make lots of the same shape. • It is used by putting the template on the fabric and carefully draw around it, the shape can then be cut out. • Know that the product must be fit for purpose - you must be able to fit your hand inside the puppet to use it. 	<ul style="list-style-type: none"> • Begin to understand the development of existing products: What they are for, how they work, materials used. • Begin to develop their ideas through talk and drawings. • Make templates and mock ups of their ideas in card and paper or using ICT. • Work with tools, equipment, materials and components to make quality products • Begin to make their design using appropriate techniques. • With help, measure, mark out, cut and shape a range of materials.
Y2	<ul style="list-style-type: none"> • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Explore different finishing techniques. 	<ul style="list-style-type: none"> • 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.

	<ul style="list-style-type: none"> • Know that running stitch is when stitches run under and over the fabric in one direction. • Know that you can join two pieces of fabric together using • running stitch, back stitch, glue or stapling. • Know that back stitch are overlapping stitches which leave a line of thread on top of the fabric. • Understand that a mock up is a practice of your design out of paper • Understand that a template is used to accurately mark out two identical pieces that can be joined together using running stitch or back stitch. • Describe what you found difficult and how you could improve on this skill. 	<ul style="list-style-type: none"> • Begin to select tools and materials; use correct vocabulary to name and describe them. • Learn to use hand tools safely and appropriately. • 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 • 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.
Y3	<ul style="list-style-type: none"> • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand the need for patterns and seam allowances. • Know that running stitch threads over and under the fabric leaving a gap between each stitch, back stitch goes back on itself leaving a continuous line of thread on top of the fabric. • Know that a hem is when you fold back the edge of the material and stitch it. This leaves a clean edge on the fabric. • Know that a blanket stitch is a line of stitches that hooks over the edge of the material leaving a secure edge. • Understand that a clear design shows you what materials will be needed, the joining techniques used and the finishes required. • Know that refine means making small changes to the design as you make your product can improve the end result. 	<ul style="list-style-type: none"> • Identify a purpose for what they intend to design and make. • Develop their ideas through talk and drawings and label parts. • Begin to select tools and materials; use correct vocabulary to name and describe them. • Explore how products can be made stronger, stiffer and more stable. • With help, measure, cut and score with some accuracy. • Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques. • 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.

	<ul style="list-style-type: none"> • Choosing the most appropriate stitch for your product. 	
Y5	<ul style="list-style-type: none"> • Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. • Add fastenings such as buttons or zips. • Know that a seam allowance is the space between the edge of the fabric and the seam you sew and that it ensures that the seams are strong and durable since there is extra fabric to prevent fraying. • Understand that some fastenings are decorative like broaches while others are functional like buttons, zips and press studs. 	<ul style="list-style-type: none"> • Identify a design criteria for a mobile phone case. • Develop their ideas through talk and drawings and label parts. • Make a paper template/pattern. • Practise using different types of stitches and choose the best one to use on my final felt phone case. • Measure, cut and score with some accuracy. • Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques. • Select decorative techniques and fastenings according to their functional properties and aesthetic qualities.

	<ul style="list-style-type: none"> • Know that a button would be an appropriate fastening for a phone case as it's functional but can also be incorporated into the design. • Understand that the design criteria is— <ul style="list-style-type: none"> •Have a fun and unique design. •Appeal to a target market of children aged between 7-10. •Include a hole for the camera and charger. •Be well made with strong stitching. • Know that continually refine means making small adaptations to the design as you make your product as this can improve the end result. • New sewing skills and understanding of fastenings can be applied to making toys or small items of clothing. 	<ul style="list-style-type: none"> • Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.
Structure		
EYFS		<ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories.
Y2	<ul style="list-style-type: none"> • Understand how to identify a target group for what they intend to design and make based on a design criteria. • Know and use technical vocabulary relevant to the project • Know that a structure is something built using different parts such as a building, bridge or dam. • Understand that weak structures cannot withstand force and so will collapse or break. Strong structures can withstand force and will not break. • Know that they can use staples, celotape, glue or masking tape to join materials together. 	<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. • 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. • Begin to select tools and materials; use correct vocabulary to name and describe them.

	<ul style="list-style-type: none"> • Know that they could strengthen your materials by adding layers, adding additional supports or creating stronger shapes. • Know that the purpose of your structure is to create an exciting new building for London after the Great Fire of London. • Explain what alternative materials, joins or strengthening techniques you would use to improve your product. 	<ul style="list-style-type: none"> • 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. • Start to choose and use appropriate finishing techniques based on own ideas.
Y4	<ul style="list-style-type: none"> • Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • CAD can be used to see a design from different angles. • Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. • Know that strengthening can be by using stronger materials, adding extra supports to the structure or choosing strong shapes in the framework to add strength. • Know that triangles are used a lot in structure as they share the weight down the sides of the shape. • Know that strong materials such as lollipop sticks, art straws bunched together and k'nex kits are ideal for creating a structure. • Know that a prototype is a simple version of your final product. It helps you to evaluate what will work and what will need to be changed. 	<ul style="list-style-type: none"> • Start to generate ideas, considering the purposes for which they are designing- link with Mathematics and Science. • 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 explain their choice of materials and components according to function and aesthetic. • Select a wider range of tools and techniques for making their product safely. • 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. • Reinforce and strengthen a 3D framework. • 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 has helped shape the world.

	<ul style="list-style-type: none"> • Products need to be tested to ensure they are fit for purpose—use a toy car to ensure the bridge/structure is strong enough to withhold weight. • Discuss what was successful with your structure, what you changed during the make and if there is anything you could do to improve it further. 	
Electrical systems		
Y4	<ul style="list-style-type: none"> • Understand how more complex electrical circuits and components can be used to create functional products. • Understand that labels are important when designing a product from different views as it helps to show specific features and highlight materials needed. • Know that the washing machine was invented by Alva Fisher in 1901. The telephone was invented by Alexander Graham Bell in 1876. The vacuume cleaner was invented Hubert Booth in 1901 • Know that a series circuit is where all components are in 1 loop so the electricity has 1 direction to flow. • Know that a conductor allows electricity to pass through (eg metal) while an insulator does not allow electricity to pass through (glass, plastic, cardboard) • Know that a series circuit will consist of a cell, a buzzer and wires acting as a conductor. 	<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. • Learn about inventors, designers and manufacturers who have developed ground-breaking products. • When planning explain their choice of materials and components according to function and aesthetic. • 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. • Demonstrate how to make a series circuit with a required outcome. • Understand how to reinforce and strengthen a 3D framework.
Y6	<ul style="list-style-type: none"> • Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing to program, monitor and control their products. 	<ul style="list-style-type: none"> • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.

	<ul style="list-style-type: none">• Know and use technical vocabulary relevant to the project.• Understand that mechanical and electrical systems have an input, process and output.• Know that an open switch circuit is where there is a break in the circuit so the current cannot flow. A closed switch circuit is a complete circuit so the current is able to flow.• Know that a shadow theatre must consist of puppets, a circuit which controls a bulb/bulbs and a screen.• Know that an input is where energy or information enters the circuit and the output is where it leaves the circuit.• The process is when it receives a signal from the input and then tells the output what to do; this could be a switch or resistor.• Understand that an exploded diagram can be used to show the different components of the product and how they can be put together.• Know to continually refine by ensuring their circuit is working effectively to control a bulb using a switch.• Be able to explain what adjustments were needed during the making of the puppet theatre.	<ul style="list-style-type: none">• 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 fail.• Confidently select appropriate tools, materials, components and techniques and use them.• Use tools safely and accurately.• Assemble components to make working models.• Demonstrate when to make modifications as they go along.• Know how more complex electrical circuits and components can be used to create functional products.• Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.
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