



Windermere Primary School

Progression map: Design and Technology

Intent: Children should be inspired by engineers, designers, chefs and architects to enable them to create a range of structures, mechanisms, textiles, electrical systems and food products with a real life purpose.

	EYFS	KS1	
	Reception	Year 1	Year 2
Design, Make, Evaluate and Improve	<ul style="list-style-type: none"> Return to and build on their previous learning, refining ideas and developing their ability to represent them Create collaboratively, sharing ideas, resources and skills 	<ul style="list-style-type: none"> Design products that have a clear purpose and an intended user. Make products, refining the design as work progresses. 	
Skills	<p><u>Food and Nutrition</u></p> <ul style="list-style-type: none"> To cut ingredients safely and hygienically. To assemble ingredients. 	<p><u>Structures</u></p> <ul style="list-style-type: none"> To identify free standing structures and explain how they know they are freestanding. To identify similarities and differences in f/s structures. To know and use technical vocabulary relating to sliders and levers. To experiment with different assembly techniques for strength and stability. To create a free standing structure to meet a brief. To evaluate how effective their f/s structure was and explain why it is good and or how it can be better. <p><u>Food and Nutrition</u></p> <ul style="list-style-type: none"> To cut, peel and thread ingredients safely and hygienically. To assemble ingredients <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> Identify simple sliders and levers in the world. Explain that sliders and levers are mechanisms that provide movement. 	<p><u>Textiles</u></p> <ul style="list-style-type: none"> To identify different ways textiles are used. To identify different fabric fasteners and say how they work. To explain what a template is and demonstrate how to use one. To know and use technical vocabulary relating to textiles joining and fastening. To create a simple product relating closely to the brief that was given. To evaluate how effective their product is and explain why it is good and how it could be improved further. <p><u>Food</u></p> <ul style="list-style-type: none"> To cut, peel and thread ingredients safely and hygienically. To measure using measuring cups. To stir and assemble ingredients. <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> Begin to select tools and materials; use vocabulary to name and describe them Measure, cut and score with some accuracy

		<ul style="list-style-type: none"> • Know and use technical vocabulary relating to sliders and levers. • Create simple levers and slides to demonstrate how they work. • Evaluate how effective a slider or lever is and explain why it is good and or how it can be improved 	<ul style="list-style-type: none"> • Use hand tools safely and appropriately • Assemble, join and combine materials in order to make a product • Use finishing techniques, including
Knowledge	<ul style="list-style-type: none"> • understand where food comes from. • understand what principles of healthy eating 	<ul style="list-style-type: none"> • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from. • 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. 	
Vocabulary	<p>Food: fruit, skewer, ingredients, safety, hygiene, kebab, slice</p>	<p>Mechanisms: assemble, design, evaluation, template, model, slider, push, pull, lever, fulcrum, pivot, slot</p> <p>Structures: net, stable, strong, target audience, template,</p> <p>Food: knife, spread, safety, hygiene, peel, core,</p>	<p>Textiles: decorate, design, fabric, stencil, template, glue, safety pins, needle, cotton</p> <p>Mechanisms axle, axle older, chassis, mechanism, model, test, score, assemble, movement</p> <p>Food: mix, blend, texture, nutrition,</p>
Key Questions	<p>Food: What different types of fruit and vegetables do we know and where do they come from? What will you include in your product eg fruit/vegetable kebabs? Why? What utensils will you use to prepare each food item? What did you think about your final product?</p>	<p>Mechanisms: Where can we find examples of moving parts - inc. sliders and levers? What different examples are there of sliders and levers? How will your design include a moving part? Which materials will you use to make your moving part?</p> <p>Structures: What structures can we find around the school? What does a good structure need?</p>	<p>Textiles: How are different materials and fabrics joined? What is a template and are all fabrics the same? How will I join the materials in my design? Does my product match my design? Does my final product match the intended purpose?</p> <p>Mechanisms: Where can I find examples of wheels and axles? Which materials are best? Can I make a product that moves? Who am I designing my product for? Which tools will I need to assemble my product?</p>

		<p>Which materials will you need to construct your equipment? How effective is your structure?</p> <p>Food:</p> <p>Is all our healthy?</p> <p>Where does the food in our lunch box come from?</p> <p>What do I need to consider in my design to make a healthy food product? What utensils will I need to prepare my product?</p> <p>How can feedback help to improve my product?</p>	<p>Does my final product meet the needs of the user?</p> <p>Food:</p> <p>Is all our healthy?</p> <p>Where does our food come from?</p> <p>What do I need to consider in my design to make a healthy food product? What utensils will I need to prepare my product?</p> <p>How can feedback help to improve my product?</p>
--	--	---	--

	Year 3	Year 4	Year 5	Year 6
Design, Make, Evaluate and Improve	<ul style="list-style-type: none"> Design with purpose by identifying opportunities to design. Make products by working efficiently (such as carefully selecting materials) Refine work and techniques as work progresses, continually evaluating the product design. 		<ul style="list-style-type: none"> Design with the user in mind, motivated by the service a product will offer. Make products through stages of prototypes, making continual refinements. Ensure products have a high quality finish, using art skills where appropriate. Use prototypes, cross-sectional diagrams and computer aided designs to represent designs. 	
Skills	<p><u>Structures</u></p> <ul style="list-style-type: none"> Choose suitable techniques to construct products. Strengthen materials using suitable techniques eg ribbing, corrugating, laminating Scoring reasonably accurately. Create a net and know that they need tabs to join net together. <p><u>Textiles</u></p> <ul style="list-style-type: none"> To understand the need for a seam allowance. To be able to tie knots To be able to thread a needle with greater independence To be able to create a template To measure and mark material with increased accuracy. To join textiles using appropriate stitching eg running stitch, back stitch. Select the most appropriate way of decorating textiles 	<p><u>Electrical systems</u></p> <ul style="list-style-type: none"> Generate ideas, considering the purposes for which they are designing Create series and parallel circuits. control their light using a switch put the switch to make the light viable <p><u>Food and Nutrition</u></p> <ul style="list-style-type: none"> To prepare and mix ingredients hygienically, using appropriate utensils. To measure ingredients to the nearest gram using scales. To crack an egg. To follow and adapt if necessary a recipe. To cook ingredients. <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> to measure accurately to choose suitable techniques to join and cut materials. To explain how linkages create movement and 	<p><u>Structures</u></p> <ul style="list-style-type: none"> Develop a range of practical skills to create products (cutting, drilling, screwing, nailing, gluing, sanding) Accurately measure, mark out, cut and shape materials and components Accurately assemble, join and combine materials and components Use a range of techniques to strengthen and stiffen structures, Demonstrate resourcefulness when tackling practical problems <p><u>Textiles</u></p> <ul style="list-style-type: none"> To create objects which require a seam (cushion cover) Join textiles with a combination of stitching appropriate for the purpose eg back stitch to join textiles, chain stitch for decoration. Use the qualities of the textiles to create visual and tactile appeal. 	<p><u>Electrical systems</u></p> <ul style="list-style-type: none"> Create circuits using electronic kits that employ a number of components. Learn about microcontrollers and how they are used to perform simple tasks. code simple programmes, developing to more advanced processes. Develop coding, debugging, measuring, cutting, joining materials, simple circuits. Improve evaluative skills through reflecting on their alarm particularly the process of applying coding to a product <p><u>Computing</u></p> <ul style="list-style-type: none"> To control and monitor models using software designed for this purpose. To write code to control and monitor models or products. <p><u>Food and Nutrition</u></p> <ul style="list-style-type: none"> To understand the importance of correct

	<u>Food and Nutrition</u> <ul style="list-style-type: none"> To prepare ingredients hygienically, using appropriate utensils. To measure or weigh ingredients using cups or electronic scales. To follow a recipe. To use a cutter to cut out shapes economically To cook ingredients. 	<p>how the direction can be changed.</p> <ul style="list-style-type: none"> To create levers and linkages that move in different ways. 	<u>Food and Nutrition</u> <ul style="list-style-type: none"> To prepare and mix ingredients hygienically, using appropriate utensils. To measure ingredients to the nearest gram using scales. To knead dough. To understand the use of yeast in the recipe. To understand the use of the proving stage To cook ingredients. 	<p>storage and handling ingredients.</p> <ul style="list-style-type: none"> To prepare, mix, divide and shape ingredients hygienically, using appropriate utensils and techniques. To peel, mix, grate and cut ingredients to combine raw ingredients ready for cooking. Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. <p><u>Mechanisms</u></p> <ul style="list-style-type: none"> Convert rotary movement into linear movement. Combine electronics or computing and mechanics in product design.
Knowledge	<ul style="list-style-type: none"> understand and use mechanical systems in their products [for example, gears, pulleys, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] understand and apply the principles of a healthy and varied diet prepare and cook a variety of dishes 		<ul style="list-style-type: none"> understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [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. 	
Vocabulary	<p>Textiles: fabric, knot, pouch, running stitch, back stitch, thimble, template, pattern, sew, attach, seam allowance, weaving</p> <p>Structures 2D, 3D, tabs, prototype, fixings, face, edge, prism, scoring,</p>	<p>Electrical systems: bulb, circuit, switch, criteria, wire, series circuit, cell, conductor, copper, component,</p> <p>Mechanisms: levers, sliders, fixings, tabs, target audience, loose pivot,</p>	<p>Food: yeast, carbon dioxide, prove, knead,</p> <p>Textiles: applique, embellishments, embroidery thread, sequins, cross stitch, blanket stitch,</p> <p>Structures:</p>	<p>Mechanisms: bench hook, cam, tenon saw, frame, template, mark, measure, dowel, follower, exploded diagram, bench hook,</p>

	ribbing, corrugating, laminating, vertex, Food whisk, measure, scales, accurate, consistency,	fixed pivot, linear, rotary, oscillating, reciprocating, prototype, innovative, Food: combine, whisk, temperature, measure, scales, combine, consistency,	strength, balance, abutment, arched, coping saw, reinforce, suspension, file, beam, compression, tension, truss bridge	Food: chop, core, slice, chopping board, boil, stock, simmer, blend, Electrical: assemble, battery, CAD, wire cutters, pliers, function, LED,
Key Questions	Structures: What makes a good structure? What skills and techniques do I need to enable me to assemble nets? How can I strengthen my structure? Who is the intended user of my design and what materials are best? Are all structures assembled in the same way? Textiles: How have existing products been made? Which fabrics are best and how can I join them? What will the purpose of my product be? How will templates help me to make my product? Did my product meet the intended purpose? Food: Is all our healthy? Where does our food come from? What do I need to consider in my design to make a healthy food product? What	Mechanisms: What existing products show oscillating and reciprocating movement? What skills do I need in order to make my own linkage and lever example? Does my design meet the needs of the user? What are the key stages in assembling my product? Is there anything that I would change in my design based Electrical: What does a switch do (in existing electrical products)? In my circuit, what is an input and what is an output and where might faults occur? How many different switches can I make? How will my design incorporate a simple circuit and a switch? Do the electrical components in my final product work? Does my final product match my initial design?	Food: What existing food products are there that celebrate culture and seasonality? How could we evaluate ingredients that could be added to basic recipes? What techniques do I need to make a simple dough including ratios? Does my design meet the design criteria? What are the steps needed in order to make my final product? Does my final product meet the intended purpose? Textiles: What is the purpose of existing products and how have they been constructed? What skills are needed to sew materials together? What skills are needed to sew materials together? How will I join the different materials together in my design?	Mechanisms: What are Cams? What tools do we need to make different cams? What ideas would incorporate a cam mechanism? What will your step-by-step plan be in order to make your product? Have I made my product aesthetically pleasing? How will feedback from my peers help to improve my product? Electrical: What does a good alarm system need? How will you use coding to make your alarm work? How will you check that your code works? What materials will you use to construct your alarm? How effective is your electronic system? Food: What existing food products are there that celebrate culture and seasonality? How could we evaluate

	<p>utensils will I need to prepare my product? How can feedback help to improve my product?</p>		<p>Have I made the right design decisions when creating my final product? Is my final product innovative enough? Structures: What materials have been used to create existing structures? What techniques can we use to reinforce structures? What product will you design to meet the criteria? What materials will you use to build your prototype? What changes will you make based on your prototype design?</p>	<p>ingredients that could be added to basic recipes? What techniques do I need to make a simple soup? Does my design meet the design criteria? What are the steps needed in order to make my final product? Does my final product meet the intended purpose?</p>
--	---	--	--	--