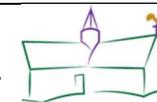


St Gregory's Design and Technology Knowledge & Skills Progression

Please note there are many cross curricular links with Wellbeing – they are indicated in different colours.

Science RE Computing Geography Maths PE (ZoR)Zones of regulation



	<i>EFYS</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>
National Curriculum/ Early Learning Goals	<p>ELG; Being Imaginative: Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through Best practice and activity ideas. ELG; Exploring and using media and materials: They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p>	<p>NATIONAL CURRICULUM: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an alternative process of designing and making. Design o design purposeful, functional, appealing products for themselves and other users based on design criteria o generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology Make o select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] o select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Evaluate o explore and evaluate a range of existing products To evaluate their ideas and products against design criteria Technical knowledge To build structures, exploring how they can be made stronger, stiffer and more stable o explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products</p>		<p>NATIONAL CURRICULUM: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. Design o 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 o generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Make o select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately o 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 Evaluate o investigate and analyse a range of existing products To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work o understand how key events and individuals in design and technology have helped shape the world Technical knowledge To apply their understanding of how to strengthen, stiffen and reinforce more complex structures To understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] o understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] o apply their understanding of computing to program, monitor and control their products.</p>			
Design (design, problem solving)	<ul style="list-style-type: none"> To manipulate materials to achieve a planned effect (skills and expertise) To construct with 	<ul style="list-style-type: none"> To begin to understand the development of existing products, asking: What they 	<ul style="list-style-type: none"> To identify a purpose for what they intend to design and make, working to a specific design criteria To 	<p>To use product research and understand how it leads to further planning.</p> <ul style="list-style-type: none"> To 	<p>Through product research, consider a products' purpose and the intended user/consumer in</p>	<p>To use research and develop design criteria to inform the design of innovative,</p>	<ul style="list-style-type: none"> To use research and develop design criteria to inform the design of functional,

<p>a purpose in mind, using a variety of resources. • To use what they have learnt about media and materials • in original ways, thinking about uses and purposes (problem solving) To represent their own ideas, thoughts and feelings through • design and technology, art, music, dance, role play and stories. (design)</p>	<p>are for, how do they work and what materials are used. (problem solving) • To design products including a hedgehog house, healthy fruit kebab, rope and pulley system and plant pot based on design criteria created together during the 1st evaluation stage. • To communicate designs via talking, pictures and plans. (design)</p>	<p>design functional and appealing products for themselves and other users, such as a wheeled vehicle; a finger puppet to entertain; and a fruit salad ,based on design criteria. • To draw on their own and others' experiences to generate their ideas and solve any problems. (problem solving) • To use talk, pictures, labelled drawings and templates to model and communicate ideas. (design)</p>	<p>generate ideas for and design appealing and functional products including a pneumatic toy, a sewn patch on a t-shirt, a pizza and its packaging (design) • To explain and justify design choices made. When planning, expand on their choice of materials and components including for function and aesthetics. • To make drawings with detailed labels when designing and to develop ideas through the use of prototypes and mock ups. (problem solving) • To start to understand and order the main stages of making a product.</p>	<p>order to generate design criteria • To generate design ideas for a wooden marble maze and fair trade baked goods, considering the purposes for which they are designing and how their ideas fit into a design criteria. (design) • To explain and justify their choice of materials and ingredients according to function and aesthetic. • To confidently make labelled drawings from multiple views showing specific features and functions of their products. (problem solving)</p>	<p>functional, appealing products that are fit for purpose such as an applique cushion, a working mechanism and a repurposed plastic product. (problem solving) • To create their own design criteria based on an initial evaluation of a product • To select and reuse appropriate materials, tools and techniques with confidence for the desired effect. (skills and expertise) • To generate, develop and communicate their ideas through discussion, pattern pieces and the use of annotated drawings, exploded diagrams, inclu making accurate measurements (design) • To start to understand how sustainable and innovative they are and the impact products have beyond their</p>	<p>appealing products that are fit for purpose such as an electronic board game, a 3D biome and a bridge structure. • To draw up a specification for their design using criteria devised by evaluating an existing product • To plan the order of their work, choosing appropriate materials, tools and techniques to suit their project outcomes • To generate, develop, model and communicate their ideas through discussion, annotated sketches, exploded diagrams, prototypes and computer-aided design. • To develop their ideas throughout the project, revisiting and suggesting alternative methods of making if the first</p>
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						intended purpose (problem solving)	attempts fail. (problem solving)
Make (skills and expertise, problem solving)	<ul style="list-style-type: none"> • To handle and use simple tools such as a blunt knife, scissors, split pins, masking tape, pencils effectively and • appropriately. (skills and expertise) • To select appropriate construction materials and adapt work where necessary. • To explore a variety of materials and techniques, experimenting with colour, design, texture and function, thinking about their intended outcome and the suitability of their choices (problem solving) 	<p>To follow simple instructions to make hedgehog home structures using examples and teacher models to support them</p> <ul style="list-style-type: none"> • With help, to mark out, cut and shape junk modelling materials, paper, string and collected, recycled items. • With support, to use a range of appropriate tools and equipment such as scissors, a hole punch, a stapler, using them safely for their intended purpose (skills and expertise) • To assemble, join and combine materials together using a variety of temporary methods such as glues, sellotape or masking tape. (problem solving) • To use simple finishing techniques to improve the appearance of a 	<p>To use the correct vocabulary to name and describe the tools and materials they are using</p> <ul style="list-style-type: none"> • With support, measure, cut and fold materials including card, felt and paper with some accuracy. • To use tools and equipment with some guidance, safely and appropriately including scissors, sewing needles, and knives to prepare food. (skills and expertise) • To explore more permanent joining techniques such as sewing, stapling and gluing, in order to make a product with some stability and structure (problem solving) • To use a basic straight stitch while sewing to join two pieces of fabric (skills and expertise) • To use drawing, colour choices, shape and arrangement to improve the 	<p>To identify potential hazards when working and plan to work safely in order to avoid these. To explain their choice of tools and equipment in relation to the skills and techniques they will be using.</p> <ul style="list-style-type: none"> • To measure, pin, mark out, cut, score and join components such as fabrics and card net structures with more accuracy (skills and expertise) • To use a combination of straight and decorative stitches to join pieces of fabric, including applying a button to their work. • To strengthen and reinforce structures through the use of different shapes and additional materials (problem solving) • To think about their ideas as they make progress and be 	<p>To confidently explain and justify their choice of tools and materials in order to achieve their planned outcome.</p> <ul style="list-style-type: none"> • To accurately mark out on paper, card and wood before cutting, using careful consideration and templates for their final product. (skills and expertise) • To use scissors, clamps, hacksaws safely and appropriately with the necessary safety equipment in place. • To join and combine components of their product in more permanent ways including using wood glue (problem solving) • To improve the finish of their final product by sanding and decorating. 	<p>To select from and use a wider range of materials, tools and techniques, according to their functional properties and aesthetic qualities</p> <ul style="list-style-type: none"> • To demonstrate how to use cutting, sewing and joining tools and equipment safely and accurately with growing confidence, such as scissors, craft knives and needles, showing caution to hazards and how to avoid them. • To measure, cut and join materials such as plastic, card, fabric and paper with accuracy to ensure a good-quality finish to the product, strengthening their product when needed (problem solving) • To create different textures through applique and combining 	<p>To select from, use and evaluate materials, tools and techniques, according to the task design, the functional properties and aesthetic qualities.</p> <ul style="list-style-type: none"> • To demonstrate how to use cutting, sewing and joining tools and equipment safely and accurately with growing confidence, such as scissors, electric components and needles, showing caution to hazards and how to avoid them. (skills and expertise) • To accurately measure, cut, fold and join paper, card, plastics, fabric and modelling materials. • To aim to make and achieve a quality product, making modifications to their product as they work to improve its

		product such as colouring or covering materials	appearance of a product	willing to change things if this helps them to improve their work. (problem solving)		fabrics with a blanket stitches (skills and expertise) • To improve the appearance of their products using techniques such as painting, additional materials and decoration.	structural stability, physical appearance and functionality (problem solving)
Evaluate (Problem solving)	To answer 'how' and 'why' questions about their experiences and what they like. • To develop explanations by connecting ideas or events To talk about ideas, and choose the resources needed for chosen activities (problem solving) • To say when they do or don't need help. • To show sensitivity to others' needs and feelings by listening to and respecting their ideas and outcomes	To evaluate existing products and devices and discuss their effectiveness, explaining what they like and dislike about them • To evaluate their products as they are making them, talking about strengths and possible changes they might make (problem solving) • To evaluate their outcomes against the class design criteria and explain whether their outcomes were successful or not.	To explore and evaluate moving cards, cars, finger puppets and boxed salads and discuss their features/effectiveness, suggesting ways in which they could be improved and why • To discuss their own ideas with confidence, explaining what they like about them and how they fit the agreed design criteria (problem solving) • To compare their final outcome with their design, the design criteria and make a decision about their success	To disassemble, test and evaluate familiar products, considering their own and the views of others of how to improve them • To evaluate their final outcomes against the original design criteria, explaining how well it meets its intended purpose and possible next steps in the design process • To evaluate the work of those who produce similar products; a local chef, Pizza with Love, and a typography designer, Luke Lucas, who have successfully developed	To analyse and evaluate existing products by tasting and testing, to make a judgement of its suitability based on the design criteria • To know the benefits and importance of evaluating products to aid your own design • To analyse and evaluate their products, using appropriate tests to do so and taking into consideration the views of others, including the intended users (problem solving) • To know that Fairtrade work with farming co-operatives, businesses and governments to	To evaluate existing products through testing and seeking the views of others to create design criteria • To explore working mechanisms, identify the components and how they function (problem solving) • To evaluate the sustainability of their product, its impact on the user and the world around them • To continually evaluate their outcome, using appropriate tests and taking into consideration the views of their intended users by seeking the views of others. • To evaluate the work	To evaluate their work throughout the design and make process, referring to the design criteria and taking into consideration the views of their intended users by seeking the views of others. • To make appropriate changes to their work as a result of self-evaluation, feedback and critique (problem solving) • To evaluate the work of Joseph Strauss and his design of the Golden gate bridge

				products. Ask how they meet the needs of their us	make trade fair. • To learn about Cadbury and manufacturers of fair trade chocolate, who have developed ground - breaking products	of global individuals who have developed sustainable products and historical engineers involved in the invention and development of the bicycle	
Technical knowledge (Skills and expertise) (non negotiables in bold)		To explore and investigate the effectiveness of a rope and pulley as a mechanism, and use this knowledge in their own product • To explore how to make structures stronger, stiffer and more stable, understanding that the shape of the structure affects its strength (skills and expertise)	To identify different types of simple mechanisms, such as a flap, slider or pop-up, in a moving card and know how they work (skills and expertise) • To explore and use wheels and axles as mechanisms in their own vehicles • To build structures, exploring how they can be made stronger, stiffer and more stable, understanding that the shape of the structure affects its strength	To describe what pneumatics systems are, that they have an input and output, and how we can use them to make movement in a product (skills and expertise) • To explore how nets make different 3d boxes and how these can be reinforced to hold a pizza safely	To understand how to reinforce and strengthen a 3D framework using joining techniques, stiffer materials and suitable shapes. (skills and expertise)	To know that mechanical and electrical systems have an input, process and output. • To understand how mechanical systems such as cogs or gears create movement (skills and expertise) • To use their understanding of mechanisms to create a working gear or cog for a bicycle	To know how to program a computer to monitor changes in the environment. • To use thermometers to measure the temperature of food before, during and after cooking. • To know how electrical circuits and components can be used to create functional products (skills and expertise) • To know what materials insulate and conduct electricity. Science • To know what makes up a simple series circuit.
Vocabulary	design, make, evaluate cut, join, plan, strengthen,	design, make, evaluate Smuggling devices, investigate,	design, make, evaluate Mechanisms, lever, slider, explore,	design, make, evaluate plan, nets, 3D boxes, reinforce,	design, make, evaluate design criteria, cube, net,	design, make, evaluate measurements,	design, make, evaluate research, develop, design

	tools, scissors, glue, tape, build, construct,	effectiveness, rope, pulley, system, design criteria, success criteria, explain, communicate, equipment, stronger, stiffer, stable, shelter, suitability, weathering, strength, waterproof, water resistant.	functional, appealing, design criteria, sewing tools, equipment, cut, shape, join, finish, select, materials, textiles, characteristics, axles, model, structure, stable, vehicle, build, test, redevelop, purpose, strength, speed, surface, efficient	equipment, success criteria, design choices, prototypes, measure, mark, score, cut, assemble, tape, pin, join, fabric, infill, strengthen, mechanisms, pneumatics, input, output, movement, appealing, design criteria, syringe.	strengthening, plan, measure, accurately, mock up, prototype, research, inventors, technology, safety, present information, tools, hacksaw, measure, finishes, opinions, analyse, products, manufacturers,	peer evaluate, texture, sewing, applique, join, combine, material, tools, design criteria, mechanisms, gears, bikes, components, model, effectiveness, scale	criteria, generate, develop, model, communicate, CAD, biome, 3D, model, prototype, rationing, make, do, mend, sewing, circuit, component, control, insulate, conduct, series circuit, motor, buzzer, switch
	Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe	NATIONAL CURRICULUM: As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Key stage 1 ♣ use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from		NATIONAL CURRICULUM: As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Key stage 2 ♣ understand and apply the principles of a healthy and varied diet ♣ prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques ♣ understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed			
Cooking and nutrition (skills and expertise) (non negotiables in bold)	To handle equipment and tools effectively, beginning to use techniques such as cutting, spreading and mixing (skills and expertise)	To begin to understand that all food comes from plants or animals. • To know the countries and climates around the world where different fruits are grown • To understand that everyone should eat	To know that all food comes from plants or animals and where food comes from. For example farmed, grown elsewhere or caught. • To select from a range of fresh salad ingredients according to their characteristics. • To name and sort foods	• To understand seasonality, and know where a variety of ingredients are grown, reared, caught and processed. • To understand that a healthy diet is made up from a variety and balance of	To synthesise information about where food comes from and how it is transported and stored To discuss seasonality, and know where and how a variety of ingredients are grown, reared, caught and		To understand that seasons may affect the food available • To understand how food is processed into ingredients that can be eaten or used in cooking • To use thermometers to measure the temperature of food before, during

		at least five portions of fruit and vegetables every day. • To prepare fruit kebabs by peeling, slicing and chopping fruits with support, safely and hygienically, without using a heat source (skills and expertise)	into the five groups in 'The Eat well plate'. • To know that everyone should eat at least five portions of fruit and vegetables every day. • To prepare a simple salad safely and hygienically by washing, slicing, peeling and grating (skills and expertise)	different food and drink. • To know that to be active and healthy, food and drink are needed to provide energy for the body. • To prepare and cook a savoury pizza safely and hygienically, using a heat source with the supervision of an adult. • To use a range of techniques such as chopping, slicing, grating, spreading, kneading and baking when making pizza dough and preparing the toppings (skills and expertise)	processed. To explain the stages of producing chocolate from cocoa bean to supermarket shelf and understand importance of supporting Fairtrade To understand that to be active and healthy, food and drink are needed to provide energy for the body. To prepare and cook a sweet cake dish safely and hygienically using a heat source. To use a range of techniques such as weighing, mixing and baking (skills and expertise)		and after cooking • To monitor and record the changes in temperature through the use of the thermometer when cooking • To understand how food is processed into ingredients that can be eaten or used in cooking • To know how to prepare and cook cheese straws building confidence when chopping, slicing, grating, mixing/rubbing, kneading, rolling and baking. (skills and expertise) • To prepare war time ration pancakes safely using a heat source (problem solving)
Vocabulary	spread, mix, healthy	food, fruit, world, seasons, journey, select, tools, safety	Explore, evaluate, design, appealing, design criteria, tools, equipment, cut, peel, chop, select, ingredients, characteristics, evaluate	seasonality, ingredients, grown, reared, caught processed, heat source, kneading, baking, cutting, grating, spreading	production, Fairtrade, grown, caught, reared, prepare, mixing, baking, safety, hygiene.		seasons, processed, availability, ingredients, peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.