



The Grove Primary School
Progression and skill for Design and Technology

Design and technology

Progression of skills and knowledge

Subject leader overview Year 1 - Year 6

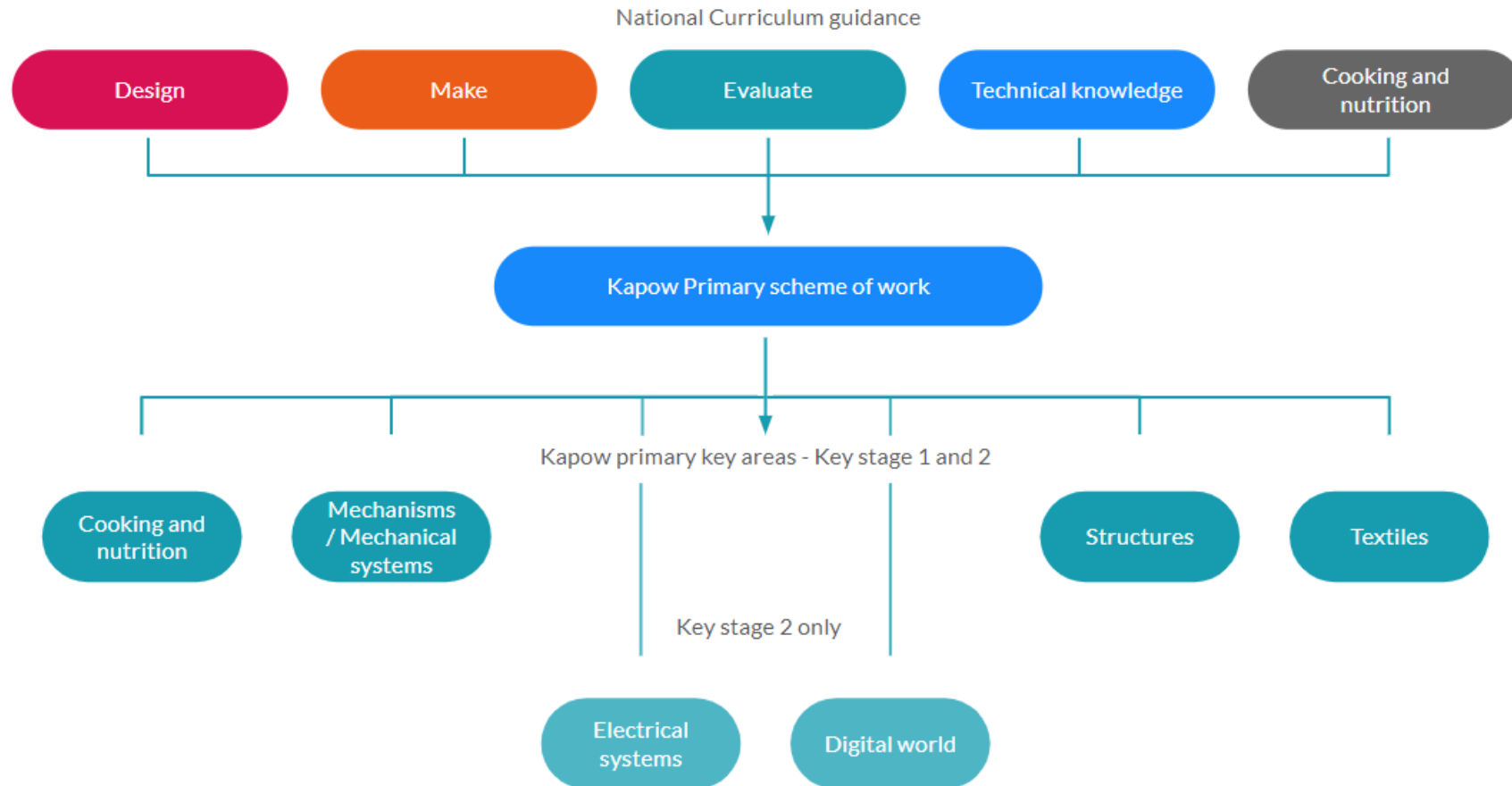


An overview of the **skills** and **knowledge** covered in each year group and strand and how these are developed through our Design and technology scheme of work.



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How is the Design and technology scheme of work organised?





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Colour Key for tables

Structures	Food	Mechanisms	Textile	Electrical systems (ks2)	Digital world (ks2)
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Year 1 Autumn	Structures - Constructing a windmill				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Learning the importance of a clear design criteria • Including individual preferences and requirements in a design 	<ul style="list-style-type: none"> • Making stable structures from card, tape and glue • Learning how to turn 2D nets into 3D structures • Following instructions to cut and assemble the supporting structure of a windmill • Making functioning turbines and axles which are assembled into a main supporting structure 	N/A	<ul style="list-style-type: none"> • To know that a client is the person I am designing for • To know that design criteria is a list of points to ensure the product meets the clients needs and wants • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity • To know that windmill turbines use wind to turn and make the machines inside work • To know that a windmill is a structure with sails that are moved by the wind • To know the three main parts of a windmill are the turbine, axle and structure 	<ul style="list-style-type: none"> • To understand that the shape of materials can be changed to improve the strength and stiffness of structures • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses) • To understand that axles are used in structures and mechanisms to make parts turn in a circle • To begin to understand that different structures are used for different purposes • To know that a structure is something that has been made and put together



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Year 1 Autumn	Food - Fruit and vegetable			
	Skills			Knowledge
	Design	Make	Evaluate	Cooking and nutrition
	<ul style="list-style-type: none"> • Designing smoothie carton packaging by-hand or on ICT software 	<ul style="list-style-type: none"> • Chopping fruit and vegetables safely to make a smoothie • Identifying if a food is a fruit or a vegetable • Learning where and how fruits and vegetables grow 	<ul style="list-style-type: none"> • Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging 	<ul style="list-style-type: none"> • Understanding the difference between fruits and vegetables • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber) • To know that a blender is a machine which mixes ingredients together into a smooth liquid • To know that a fruit has seeds and a vegetable does not • To know that fruits grow on trees or vines • To know that vegetables can grow either above or below ground • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber)

Year 1 Spring	Textile – Puppets			
	Skills			Knowledge
	Design	Make	Evaluate	
	<ul style="list-style-type: none"> • Using a template to create a design for a puppet 	<ul style="list-style-type: none"> • Cutting fabric neatly with scissors • Using joining methods to decorate a puppet • Sequencing steps for construction 	<ul style="list-style-type: none"> • Reflecting on a finished product, explaining likes and dislikes 	<ul style="list-style-type: none"> • To know that 'joining technique' means connecting two pieces of material together • To know that there are various temporary methods of joining fabric by using staples, glue or pins • To understand that different techniques for joining materials can be used for different purposes • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times • To know that drawing a design idea is useful to see how an idea will look



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Year 1 Summer	Mechanisms – Wheels and Axels			
	Skills			Knowledge
	Design	Make	Evaluate	Additional
	<ul style="list-style-type: none"> • Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move • Creating clearly labelled drawings which illustrate movement 	<ul style="list-style-type: none"> • Adapting mechanisms 	<ul style="list-style-type: none"> • Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move 	<ul style="list-style-type: none"> • To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles
				<ul style="list-style-type: none"> • To know that wheels need to be round to rotate and move • To understand that for a wheel to move it must be attached to a rotating axle • To know that an axle moves within an axle holder which is fixed to the vehicle or toy • To know that the frame of a vehicle (chassis) needs to be balanced



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Year 2 Autumn	Food - Fruit and vegetable			
	Skills			Knowledge
	Design	Make	Evaluate	Cooking and nutrition
	Designing a healthy wrap based on a food combination which work well together	<ul style="list-style-type: none"> Slicing food safely using the bridge or claw grip Constructing a wrap that meets a design brief 	<ul style="list-style-type: none"> Describing the taste, texture and smell of fruit and vegetables Taste testing food combinations and final products Describing the information that should be included on a label Evaluating which grip was most effective 	<ul style="list-style-type: none"> To know that 'diet' means the food and drink that a person or animal usually eats To understand what makes a balanced diet To know where to find the nutritional information on packaging To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar To understand that I should eat a range of different foods from each food group, and roughly how much of each food group To know that nutrients are substances in food that all living things need to make energy, grow and develop To know that 'ingredients' means the items in a mixture or recipe To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'

Year 2 Autumn	Mechanisms – Making a moving Monster				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> Creating a class design criteria for a moving monster Designing a moving monster for a specific audience in accordance with a design criteria 	<ul style="list-style-type: none"> Making linkages using card for levers and split pins for pivots Experimenting with linkages adjusting the widths, lengths and thicknesses of card used 	<ul style="list-style-type: none"> Evaluating own designs against design criteria Using peer feedback to modify a final design 	<ul style="list-style-type: none"> To know some real-life objects that contain mechanisms 	<ul style="list-style-type: none"> To know that mechanisms are a collection of moving parts that work together as a machine to produce movement



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		<ul style="list-style-type: none"> • Cutting and assembling components neatly 			<ul style="list-style-type: none"> • To know that there is always an input and output in a mechanism • To know that an input is the energy that is used to start something working • To know that an output is the movement that happens as a result of the input • To know that a lever is something that turns on a pivot • To know that a linkage mechanism is made up of a series of levers
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Year 2 Spring	Structures – Baby bears chair				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Generating and communicating ideas using sketching and modelling • Learning about different types of structures, found in the natural world and in everyday objects 	<ul style="list-style-type: none"> • Making a structure according to design criteria • Creating joints and structures from paper/card and tape • Building a strong and stiff structure by folding paper 	<ul style="list-style-type: none"> • Exploring the features of structures • Comparing the stability of different shapes • Testing the strength of own structures • Identifying the weakest part of a structure • Evaluating the strength, stiffness and stability of own structure 	<ul style="list-style-type: none"> • To know that natural structures are those found in nature • To know that man-made structures are those made by people 	<ul style="list-style-type: none"> • To know that shapes and structures with wide, flat bases or legs are the most stable • To understand that the shape of a structure affects its strength • To know that materials can be manipulated to improve strength and stiffness • To know that a structure is something which has been formed or made from parts



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					<ul style="list-style-type: none"> • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move • To know that a 'strong' structure is one which does not break easily • To know that a 'stiff' structure or material is one which does not bend easily
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<u>Year 2</u> <u>Summer</u>	Textile – Pouches				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Designing a pouch 	<ul style="list-style-type: none"> • Selecting and cutting fabrics for sewing • Decorating a pouch using fabric glue or running stitch • Threading a needle • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric • Neatly pinning and cutting fabric using a template 	<ul style="list-style-type: none"> • Troubleshooting scenarios posed by teacher • Evaluating the quality of the stitching on others' work • Discussing as a class, the success of their stitching against the success criteria • Identifying aspects of their peers' work that they particularly like and why 	<ul style="list-style-type: none"> • To know that sewing is a method of joining fabric• To know that different stitches can be used when sewing • To understand the importance of tying a knot after sewing the final stitch • To know that a thimble can be used to protect my fingers when sewing 	



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Year 3 Autumn	Textile – Cushions			
	Skills			Knowledge
	Design	Make	Evaluate	
	<ul style="list-style-type: none"> • Designing and making a template from an existing cushion and applying individual design criteria 	<ul style="list-style-type: none"> • Following design criteria to create a cushion • Selecting and cutting fabrics with ease using fabric scissors • Threading needles with greater independence • Tying knots with greater independence • Sewing cross stitch to join fabric • Decorating fabric using appliqué • Completing design ideas with stuffing and sewing the edges 	<ul style="list-style-type: none"> • Evaluating an end product and thinking of other ways in which to create similar items 	<ul style="list-style-type: none"> • To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric • To know that when two edges of fabric have been joined together it is called a seam • To know that it is important to leave space on the fabric for the seam • To understand that some products are turned inside out after sewing so the stitching is hidden

Year 3 Spring	Mechanisms – Making a pneumatic toy				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Designing a toy which uses a pneumatic system • Developing design criteria from a design brief • Generating ideas using thumbnail sketches and exploded diagrams • Learning that different types of drawings are used in design to explain ideas clearly 	<ul style="list-style-type: none"> • Creating a pneumatic system to create a desired motion • Building secure housing for a pneumatic system • Using syringes and balloons to create different types of pneumatic systems to make a functional and 	<ul style="list-style-type: none"> • Using the views of others to improve designs • Testing and modifying the outcome, suggesting improvements • Understanding the purpose of exploded-diagrams through the 	<ul style="list-style-type: none"> • To understand how sketches, drawings and diagrams can be used to communicate design ideas • To know that exploded-diagrams are used to show how different parts of a product fit together • To know that thumbnail sketches are small 	<ul style="list-style-type: none"> • To understand how pneumatic systems work • To understand that pneumatic systems can be used as part of a mechanism • To know that pneumatic systems operate by drawing in,



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		appealing pneumatic toy • Selecting materials due to their functional and aesthetic characteristics • Manipulating materials to create different effects by cutting, creasing, folding, weaving	eyes of a designer and their client	drawings to get ideas down on paper quickly	releasing and compressing air
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<u>Year 3</u> <u>Summer</u>	<u>Food - Fruit and vegetable</u>			
	<u>Skills</u>			<u>Knowledge</u>
	<u>Design</u>	<u>Make</u>	<u>Evaluate</u>	<u>Cooking and nutrition</u>
	<ul style="list-style-type: none"> • Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish 	<ul style="list-style-type: none"> • Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination • Following the instructions within a recipe 	<ul style="list-style-type: none"> • Establishing and using design criteria to help test and review dishes • Describing the benefits of seasonal fruits and vegetables and the impact on the environment • Suggesting points for improvement when making a seasonal tart 	<ul style="list-style-type: none"> • To know that not all fruits and vegetables can be grown in the UK • To know that climate affects food growth • To know that vegetables and fruit grow in certain seasons • To know that cooking instructions are known as a 'recipe' • To know that imported food is food which has been brought into the country • To know that exported food is food which has been sent to another country. • To understand that imported foods travel from far away and this can negatively impact the environment • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health • To know safety rules for using, storing and cleaning a knife safely



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				<ul style="list-style-type: none"> To know that similar coloured fruits and vegetables often have similar nutritional benefits
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Year 3 Summer	Structures – Constructing a castle				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> Designing a castle with key features to appeal to a specific person/purpose Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours Designing and/or decorating a castle tower on CAD software 	<ul style="list-style-type: none"> Constructing a range of 3D geometric shapes using nets Creating special features for individual designs Making facades from a range of recycled materials 	<ul style="list-style-type: none"> Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design Suggesting points for modification of the individual designs 	<ul style="list-style-type: none"> To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose To know that a façade is the front of a structure To understand that a castle needed to be strong and stable to withstand enemy attack To know that a paper net is a flat 2D shape that can become a 3D shape once assembled To know that a design specification is a list of success criteria for a product 	<ul style="list-style-type: none"> To understand that wide and flat based objects are more stable To understand the importance of strength and stiffness in structures



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Year 4 Autumn	Mechanisms – Wheels and Axels			
	Skills			Knowledge
	Design	Make	Evaluate	Additional
				Technical
	<ul style="list-style-type: none"> • Designing a shape that reduces air resistance • Drawing a net to create a structure from <ul style="list-style-type: none"> • Choosing shapes that increase or decrease speed as a result of air resistance • Personalising a design 	<ul style="list-style-type: none"> • Measuring, marking, cutting and assembling with increasing accuracy • Making a model based on a chosen design 	<ul style="list-style-type: none"> • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance 	<ul style="list-style-type: none"> • To understand that products change and evolve over time • To know that aesthetics means how an object or product looks in design and technology • To know that a template is a stencil you can use to help you draw the same shape accurately • To know that a birds-eye view means a view from a high angle (as if a bird in flight) • To know that graphics are images which are designed to explain or advertise something • To know that it is important to assess and evaluate design ideas and models against a list of design criteria.
				<ul style="list-style-type: none"> • To understand that all moving things have kinetic energy • To understand that kinetic energy is the energy that something (object/person) has by being in motion • To know that air resistance is the level of drag on an object as it is forced through the air • To understand that the shape of a moving object will affect how it moves due to air resistance.

Year 4 Spring	Food - Fruit and vegetable			
	Skills			Knowledge
	Design	Make	Evaluate	Cooking and nutrition
	<ul style="list-style-type: none"> • Designing a biscuit within a given 	<ul style="list-style-type: none"> • Following a baking recipe • Cooking safely, 	<ul style="list-style-type: none"> • Evaluating a recipe, considering: taste, 	<ul style="list-style-type: none"> • To know that the amount of an ingredient in a recipe is known as the 'quantity'



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	budget, drawing upon previous taste testing	following basic hygiene rules • Adapting a recipe	smell, texture and appearance • Describing the impact of the budget on the selection of ingredients • Evaluating and comparing a range of products • Suggesting modifications	<ul style="list-style-type: none"> • To know that it is important to use oven gloves when removing hot food from an oven • To know the following cooking techniques: sieving, creaming, rubbing method, cooling • To understand the importance of budgeting while planning ingredients for biscuits
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Year 4 Spring	Electrical systems- torches				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas 	<ul style="list-style-type: none"> • Making a torch with a working electrical circuit and switch • Using appropriate equipment to cut and attach materials • Assembling a torch according to the design and success criteria 	<ul style="list-style-type: none"> • Evaluating electrical products • Testing and evaluating the success of a final product and taking inspiration from the w 	<ul style="list-style-type: none"> • To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison 	<ul style="list-style-type: none"> • To understand that electrical conductors are materials which electricity can pass through • To understand that electrical insulators are materials which electricity cannot pass through • To know that a battery contains stored electricity that can be used to power products • To know that an electrical circuit must be complete for electricity to flow • To know that a switch can be used to complete and break an electrical circuit



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Year 4 Summer	Digital world – Mindful moment timer				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional Technical	
	<ul style="list-style-type: none"> • Writing design criteria for a programmed timer (Micro:bit) • Exploring different mindfulness strategies • Applying the results of my research to further inform my design criteria • Developing a prototype case for my mindful moment timer • Using and manipulating shapes and clipart, using computer-aided design (CAD), to produce a logo • Following a list of design requirements 	<ul style="list-style-type: none"> • Developing a prototype case for my mindful moment timer • Creating a 3D structure using a net • Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press 	<ul style="list-style-type: none"> • Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages • Evaluating my micro:bit program against points on my design criteria and amending them to include any changes I made • Documenting and evaluating my project • Understanding what a logo is and why they are important in the world of design and business • Testing my program for bugs (errors in the code) • Finding and fixing the bugs (debug) in my code 	<ul style="list-style-type: none"> • Understand the terms 'ergonomic' and 'aesthetic' • Know that a prototype is a 3D model made out of cheap materials, that allows us • To test design ideas and make better decisions about size, shape and materials 	<ul style="list-style-type: none"> • To understand what variables are in programming • To know some of the features of a Micro:bit • To know that an algorithm is a set of instructions to be followed by the computer • To know that it is important to check my code for errors (bugs) • To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device



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Year 5 Autumn	Mechanisms – Pop up book				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Designing a pop-up book which uses a mixture of structures and mechanisms • Naming each mechanism, input and output accurately • Storyboarding ideas for a book 	<ul style="list-style-type: none"> • Following a design brief to make a pop up book, neatly and with focus on accuracy • Making mechanisms and/or structures using sliders, pivots and folds to produce movement • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result 	<ul style="list-style-type: none"> • Evaluating the work of others and receiving feedback on own work • Suggesting points for improvement 	<ul style="list-style-type: none"> • To know that a design brief is a description of what I am going to design and make • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing 	<ul style="list-style-type: none"> • To know that mechanisms control movement • To understand that mechanisms that can be used to change one kind of motion into another • To understand how to use sliders, pivots and folds to create paper-based mechanisms

Year 5 Spring	Food - Fruit and vegetable			
	Skills			Knowledge
	Design	Make	Evaluate	Cooking and nutrition
	<ul style="list-style-type: none"> • Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients • Writing an amended method for a recipe to incorporate the relevant changes to ingredients • Designing appealing packaging to reflect a recipe 	<ul style="list-style-type: none"> • Cutting and preparing vegetables safely • Using equipment safely, including knives, hot pans and hobs • Knowing how to avoid cross-contamination • Following a step by step method carefully to make a recipe 	<ul style="list-style-type: none"> • Identifying the nutritional differences between different products and recipes • Identifying and describing healthy benefits of food groups 	<ul style="list-style-type: none"> • To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues • To know that I can adapt a recipe to make it healthier by substituting ingredients • To know that I can use a nutritional calculator to see how healthy a food option is • To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects



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Year 5 Spring	Structures – Bridges				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional Technical	
	<ul style="list-style-type: none"> • Designing a stable structure that is able to support weight • Creating frame structure with focus on triangulation 	<ul style="list-style-type: none"> • Making a range of different shaped beam bridges • Using triangles to create truss bridges that span a given distance and supports a load • Building a wooden bridge structure • Independently measuring and marking wood accurately • Selecting appropriate tools and equipment for particular tasks • Using the correct techniques to saws safely • Identifying where a structure needs reinforcement and using card corners for support • Explaining why selecting appropriating materials is an important part of the design process • Understanding basic wood functional properties 	<ul style="list-style-type: none"> • Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary • Suggesting points for improvements for own bridges and those designed by others 	<ul style="list-style-type: none"> • To understand the difference between arch, beam, truss and suspension bridges • To understand how to carry and use a saw safely 	<ul style="list-style-type: none"> • To understand some different ways to reinforce structures • To understand how triangles can be used to reinforce bridges • To know that properties are words that describe the form and function of materials • To understand why material selection is important based on their properties • To understand the material (functional and aesthetic) properties of wood



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Year 5 Summer	Digital world – Monitoring devices			
	Skills			Knowledge
	Design	Make	Evaluate	Additional Technical
	<ul style="list-style-type: none"> • Researching (books, internet) for a particular (user's) animal's needs • Developing design criteria based on research • Generating multiple housing ideas using building bricks • Understanding what a virtual model is and the pros and cons of traditional and CAD modelling • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD 	<ul style="list-style-type: none"> • Understanding the functional and aesthetic properties of plastics • Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range 	<ul style="list-style-type: none"> • Stating an event or fact from the last 100 years of plastic history • Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices • Explaining key functions in my program (audible alert, visuals) • Explaining how my product would be useful for an animal carer including programmed features 	<ul style="list-style-type: none"> • To understand key developments in thermometer history • To know events or facts that took place over the last 100 years in the history of plastic, and how this is changing our outlook on the future • To know the 6Rs of sustainability • To understand what a virtual model is and the pros and cons of traditional vs CAD modelling
				<ul style="list-style-type: none"> • To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record • To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose • To understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met



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Year 6 Autumn	Food - Fruit and vegetable			
	Skills			Knowledge
	Design	Make	Evaluate	Cooking and nutrition
	<ul style="list-style-type: none"> • Writing a recipe, explaining the key steps, method and ingredients • Including facts and drawings from research undertaken 	<ul style="list-style-type: none"> • Following a recipe, including using the correct quantities of each ingredient • Adapting a recipe based on research <ul style="list-style-type: none"> • Working to a given timescale • Working safely and hygienically with independence 	<ul style="list-style-type: none"> • Evaluating a recipe, considering: taste, smell, texture and origin of the food group • Taste testing and scoring final products <ul style="list-style-type: none"> • Suggesting and writing up points of improvements in productions • Evaluating health and safety in production to minimise cross contamination 	<ul style="list-style-type: none"> • To know that 'flavour' is how a food or drink tastes • To know that many countries have 'national dishes' which are recipes associated with that country • To know that 'processed food' means food that has been put through multiple changes in a factory • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork)

Year 6 Autumn	Digital world – Navigating the world				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Writing a design brief from information submitted by a client • Developing design criteria to fulfil the client's request • Considering and suggesting additional functions for my navigation tool <ul style="list-style-type: none"> • Developing a product idea through annotated sketches • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD 	<ul style="list-style-type: none"> • Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo) • Explaining material choices and why they were chosen as part of a product concept • Programming an N,E, S,W cardinal compass 	<ul style="list-style-type: none"> • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Developing an awareness of sustainable design <ul style="list-style-type: none"> • Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the 	<ul style="list-style-type: none"> • To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request • To know that 'multifunctional' means an object or product has more than one function • To know that magnetometers are devices that measure the Earth's magnetic field to 	<ul style="list-style-type: none"> • To know that accelerometers can detect movement • To understand that sensors can be useful in products as they mean the product can function without human input



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			client's request and how it will benefit the customers <ul style="list-style-type: none"> • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept 	determine which direction you are facing	
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Year 6 Spring	Textile – Waistcoats			
	Skills			Knowledge
	Design	Make	Evaluate	
	<ul style="list-style-type: none"> • Designing a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme • Annotating designs 	<ul style="list-style-type: none"> • Using a template when pinning panels onto fabric • Marking and cutting fabric accurately, in accordance with a design • Sewing a strong running stitch, making small, neat stitches and following the edge • Tying strong knots • Decorating a waistcoat - attaching objects using 	<ul style="list-style-type: none"> • Evaluating work continually as it is created 	<ul style="list-style-type: none"> • To understand that it is important to design clothing with the client/ target customer in mind • To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric • To understand the importance of consistently sized stitches



The Grove Primary School
Progression and skill for Design and Technology

		thread and adding a secure fastening • Learning different decorative stitches • Sewing accurately with even regularity of stitches		
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Year 6 Summer	Electrical systems – Steady Hand Game				
	Skills			Knowledge	
	Design	Make	Evaluate	Additional	Technical
	<ul style="list-style-type: none"> • Designing a steady hand game - identifying and naming the components required • Drawing a design from three different perspectives • Generating ideas through sketching and discussion • Modelling ideas through prototypes • Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function' 	<ul style="list-style-type: none"> • Constructing a stable base for a game • Accurately cutting, folding and assembling a net • Decorating the base of the game to a high quality finish • Making and testing a circuit Incorporating a circuit into a base 	<ul style="list-style-type: none"> • Testing own and others finished games, identifying what went well and making suggestions for improvement • Gathering images and information about existing children's toys • Analysing a selection of existing children's toys 	<ul style="list-style-type: none"> • To know that 'form' means the shape and appearance of an object • To know the difference between 'form' and 'function' • To understand that 'fit for purpose' means that a product works how it should and is easy to use • To know that form over purpose means that a product looks good but does not work very well • To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind • To understand the diagram perspectives 'top view', 'side view' and 'back' 	<ul style="list-style-type: none"> • To know that batteries contain acid, which can be dangerous if they leak • To know the names of the components in a basic series circuit including a buzzer