



Subject Progression for Design and Technology - EYFS					
	Communication and Language	Physical Development	Personal, Social and Emotional	Expressive Arts & Design	Understanding the World
Workshop - Junk Modelling		Develop small motor skills so that they can use a range of tools competently, safely and confidently. ELG: Fine Motor Skills - Use a range of small tools, including scissors, paint brushes and cutlery.		Explore, use and refine a variety of artistic effects to express ideas and feelings. ELG: Creating with Materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Create collaboratively, sharing ideas, resources and skills. Return to and build on their previous learning, refining ideas and developing their ability to represent them. ELG: Creating with Materials: Share their creations, explaining the process they have used.	



Food - Soup	Learn new vocabulary. Use new vocabulary throughout the day. ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.	Develop small motor skills so that they can use a range of tools competently, safely and confidently. ELG: Fine Motor Skills: Use a range of small tools, including scissors, paint brushes and cutlery.	Know and talk about the different factors that support their overall health and wellbeing: healthy eating. ELG: Managing self: Manage their own basic hygiene and personal needs, including...understanding the importance of healthy food choices	Explore, use and refine a variety of artistic effects to express ideas and feelings. ELG: Creating with materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	Explore the natural world around them. ELG: The Natural World: Explore the natural world around them, making observations and drawing pictures of animals and plants.
Structures - Boats	Articulate their ideas and thoughts in well-formed sentences. Connect one idea or action to another using a range of connectives. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary ELG: Speaking: Offer explanations for why things might happen.			Explore, use and refine a variety of artistic effects to express their ideas and feelings. ELG: Creating with materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. ELG: Creating with materials: Share their creations, explaining the process they have used.	Explore the natural world around them. ELG: The Natural World: Explore the natural world around them, making observations and drawing pictures of animals and plants



Subject Progression for Design and Technology - KS1 / KS2						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design						
Structures		- Generating and communicating ideas using sketching and modelling - Learning about different types of structures, found in the natural world and in everyday objects				Designing a bridge featuring a variety of different structures (truss, beam, arch, suspension), giving careful consideration to how the structures will be used, considering effective and ineffective designs
Mechanisms	- Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move. - Creating clearly labelled drawings which illustrate Movement.	- Creating a class design criteria for a moving monster. - Designing a moving monster for a specific audience in accordance with a design criteria. - Selecting a suitable linkage system to produce the desired motions. - Designing a wheel. - Selecting appropriate materials based on their properties.	- 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	- Designing a product that incorporates a pneumatic system. - Drawing a net to create a structure. - Personalising a design.	- 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.	



E l e c t r i c a l S y s t e m s			• Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas. • Generate a final design for the electric poster with consideration to the client's needs and design criteria. • Design an electric poster that fits the requirements of a given brief. • Plan the positioning of the bulb (circuit component) and its purpose.	• Designing a poster / doodler, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that clarifies the target user.	
C o o k i n g a n d N u t r i t i o n	• Designing smoothie carton packaging by-hand or on ICT software.	• Designing a healthy wrap based on a food combination which work well together.				• Writing a recipe, explaining the key steps, method and Ingredients. • Including facts and drawings from research undertaken.



Textiles	Using a template to create a design for a puppet.					
Digital World			- Problem solving by suggesting which features on a Micro:bit might be useful and justifying my ideas. - Drawing and manipulating 2D shapes, using computer-aided design, to produce a point-of-sale badge. - Developing design ideas through annotated sketches to create a product concept. - Developing design criteria to respond to a design brief.	- Writing design criteria for a programmed timer / monitoring device (Micro:bit). - Applying the results of my research to further inform my design criteria. - Developing a prototype case / housing for my mindful moment timer / monitoring device. - Using and manipulating shapes and clipart by using computer-aided design (CAD), to produce a logo. - Following a list of design requirements.	- 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 combining one or more 3D objects, using CAD.	



Make						
Stru ctur es		• 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.				• Building an authentic bridge structure drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures.
Mec hani sms	Adapting mechanisms, when: • they do not work as they should. • to fit their vehicle design. • to improve how they work after testing their vehicle.	• Making linkages using card for levers and split pins for pivots. • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. • Cutting and assembling components neatly.	• 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 appealing pneumatic toy. • Selecting materials due to their functional and aesthetic characteristics. • Manipulating materials to create different effects by cutting, creasing, folding and weaving.	• Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design.	• 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.	
Elec trica l Syst ems			• Create a final design for the electric poster. • Mount the poster onto corrugated card to improve its strength and allow it to withstand the weight of	• Making a poster with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials.	• Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor.	



			the circuit on the rear. • Measure and mark materials out using a template or ruler. • Fit an electrical component (bulb). • Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge).	• Assembling a product according to the design and success criteria.	• Constructing a product with consideration for the design criteria. • Breaking down the construction process into steps so that others can make the product.	
Cooking and Nutrition	• Chopping fruit and vegetables safely to make a smoothie. • Juicing fruits safely to make a smoothie.	• Chopping foods safely to make a wrap. • Constructing a wrap that meets a design brief. • Grating foods to make a wrap. • Snipping smaller foods instead of cutting.				• Following a recipe, including using the correct quantities of each ingredient. • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence.



Text iles	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.					
Digit al Worl d			• Following a list of design requirements. • Writing a program to control (button press) and/or monitor (sense light or buzzer) that will initiate a flashing LED algorithm.	• Developing a prototype case for my mindful moment timer / monitoring device. • Creating 3D structures using modelling materials. • Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press or to alert if the temperature is too hot or cold.	• 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.	
Evaluation						
Stru ctur es		• Exploring the features of Structures. • Comparing the stability of different shapes. • Testing the strength of own Structures. • Identifying the weakest				• Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure.



		part of a structure. • Evaluating the strength, stiffness and stability of own structure.				
Mechanisms	• Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.	• Evaluating own designs against design criteria. • Using peer feedback to modify a final design. • Evaluating different designs. • Testing and adapting a design.	• Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.	• Evaluating the effectiveness of a final product.	• Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.	
Electrical Systems			• Learning to give and accept constructive criticism on own work and the work of others. • Testing the success of initial ideas against the design criteria and justifying opinions. • Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs.	• Evaluating electrical products. • Testing and evaluating the success of a final product and taking inspiration from the work of peers.	• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. • Peer evaluating a set of instructions to build a product.	
Cooking and Nutrition	• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on	• Describing the taste, texture and smell of fruit and vegetables. • Taste testing food combinations and final products.				• Evaluating a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products.



	- packaging. • Comparing their own smoothie with someone else's.	• Describing the information that should be included on a label. • Evaluating food by giving a score.				• Suggesting and writing up points of improvements in Productions. • Evaluating health and safety in production to minimise cross Contamination.
Text iles	• Reflecting on a finished product, explaining likes and dislikes.					
Digit al Worl d			• Analysing and evaluating digital technology. • Using feedback from peers to improve design.	• Investigating and analysing a range of timers / sensors 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. • Using an exhibition to gather feedback. • Gathering feedback from the user to make suggested	• 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.	



				improvements to a product.		
Technical Knowledge						
Stru ctur es		• 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. • 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.				• 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 properties. • To understand the material (functional and aesthetic) properties of wood. • To know that structures can be strengthened by manipulating materials and shapes.
Mec hani sms	• To know that wheels need to be round to rotate and move. • To understand that for a	• To know that mechanisms are a collection of moving parts that work together as a machine to produce	• To understand how pneumatic systems work. • To understand that pneumatic systems can be	• To know that a design brief is a description of what I am going to design and make.	• To know that mechanisms control movement. • To understand that mechanisms can be used to	



	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.	movement. • 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.	used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air.	• To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.	change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms.	
Elec trica l Syst ems			• To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit. • To understand common features of an electric product (switch, battery or plug, dials, buttons etc.). • To list examples of common electric products (kettle, remote control etc.). • To understand that an electric product uses an electrical system to work (function). • To know the name and appearance of a bulb,	• 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.	• To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function.	



			battery, battery holder and crocodile wire to build simple circuits.			
Cooking and Nutrition	• To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables are any edible part of a plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	• To know that 'diet' means the food and drink that a person or animal usually eats. • To know what makes a balanced diet. • To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To know that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that 'ingredients' means the items in a mixture or recipe. • To know how to cut, grate, snip and spread to prepare foods. • To know how to review and give a score to evaluate.				• 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).
Textiles	• 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.					
Digital World			• To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. • To know that a Micro:bit is a pocket-sized, codeable computer. • To know that a simulator is able to replicate the functions of an existing piece of technology.	• To understand the terms 'ergonomic' and 'aesthetic'. • To 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. • To know that an exhibition is a way for companies to showcase products, meet potential new customers and gather feedback from users.	• 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.	