			EYFS	EYFS	Year 1	Year 2
			Junk modelling	Boats	Stable structures	A chair for a Bear
Structures	Skills	Design	Making verbal plans and material choices. Developing a junk model.	Designing a junk model boat. Using knowledge from exploration to inform design.	Thinking about what others might want from a design. Beginning to recognise how products and designs in the world around us solve certain needs. Considering who they are designing for – identifying the user. Stating what they intend to make and why – identifying the purpose. Talking about ideas, with purpose and user in mind. Talking about existing products when generating ideas. Using basic drawing skills to communicate ideas.	Generating and communicating ideas using sketching and modelling. Learning about different types of structures, found in the natural world and in everyday objects
		Make	Improving fine motor/scissor skills with a variety of materials. Joining materials in a variety of ways (temporary and permanent). Joining different materials together. Describing their junk model, and how they intend to put it together.	Making a boat that floats and is waterproof, considering material choice.	Choosing between a small number of materials, ingredients or components. Explaining their choices based on personal experiences. Requesting equipment appropriate to the purpose. (e.g. scissors for cutting, glue for joining) Beginning to use objects with a fixed width or length to create even spacing of markings or cuts (e.g. a lolly stick). Refining their grip to cut competently and confidently. Cutting straight lines and evenly spaced lines. Beginning to cut large shapes and thicker materials like card	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

		Evaluate	Giving a verbal evaluation of their own and others' junk models with adult support Checking to see if their model matches their plan. Considering what they would do differently if they were to do it again. Describing their favourite and least favourite part of their model.	Making predictions about, and evaluating different materials to see if they are waterproof. Making predictions about, and evaluating existing boats to see which floats best. Testing their design and reflecting on what could have been done differently. Investigating the how the shapes and structure of a boat affect the way it moves.	Discussing existing products, saying what they like about them. Comparing two products and discuss which is better for a specific purpose. Saying what they like about their peers' designs and products. Accepting feedback and understanding it is meant to improve their work	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.
	Knowledge	Technical	To know there are a range to different materials that can be used to make a model and that they are all slightly different. Making simple suggestions to fix their junk model.	To know that 'waterproof' materials are those which do not absorb water.	Recognising that different structures are used for different purposes. Exploring the features of structures. Describing structures as buildings or freestanding structures. Making stable structures from card. Creating supporting structures to aid stability. Using stable objects like cylinders to create structures	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.

		Additional		To know that some objects float and others sink. To know the different parts of a boat	To know that the 'user' is the person who will use the product. To know that different users may want different things from a design. To know that who they are designing for makes a difference to what they design. To know that the purpose is what something is for. To know that existing products can help when deciding what to design. To know that drawings are a way to explain ideas. To know that a plan is deciding what to do first and next. To know that different equipment does different things. To know the names of common pieces of equipment. To know that some products will be better than others. To know that their ideas or products can be made better. To know that their ideas can makes someone else's work better To know that other people's ideas can help make their work better. To know that a structure is something that has been made and put together. To know that stable structures do not topple. To know that shapes and structures with wide, flat bases or legs are the most stable. To know that adding weight to the base of a structure can make it more stable.	To know that natural structures are those found in nature. To know that man-made structures are those made by people.

			Year 4	Year 6
			Pavillions	Playgrounds
Structures	Skills	Design	Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. Building frame structures designed to support weight.	Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
		Make	Creating a range of different shaped frame structures. Making a variety of free standing frame structures of different shapes and sizes. Selecting appropriate materials to build a strong structure and cladding. Reinforcing corners to strengthen a structure. Creating a design in accordance with a plan. Learning to create different textural effects with materials.	Building a range of play apparatus structures 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.
		Evaluate	Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.	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.
	Knowledge	Technical	To understand what a frame structure is. To know that a 'free-standing' structure is one which can stand on its own.	To know that structures can be strengthened by manipulating materials and shapes.
		Additional	To know that a pavilion is a decorative building or structure for leisure activities. To know that cladding can be applied to structures for different effects. To know that aesthetics are how a product looks. To know that a product's function means its purpose. To understand that the target audience means the person or group of people a product is designed for. To know that architects consider light, shadow and patterns when designing	To understand what a 'footprint plan' is. To understand that in the real world, design can impact users in positive and negative ways. To know that a prototype is a cheap model to test a design idea.

			Year 2
			Making a moving monster
Mechanisms/ Mechanical systems	Skills	Design	Creating a class design criteria for a moving monster. Designing a moving monster for a specific audience in accordance with a design criteria.
		Make	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.
		Evaluate	Evaluating own designs against design criteria. Using peer feedback to modify a final design.
	Knowledge	Technical	To know that mechanisms are a collection of moving parts that work together as a machine to produce 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.
		Additional	To know some real-life objects that contain mechanisms.

			Year 4	Year 5
			Making a slingshot Car	Making a pop-up book
Mechanisms/ Mechanical systems	Skills	Design	Designing a shape that reduces air resistance. Drawing a net to create a structure from. Choosing shapes that increase or decrease speed as a result of air resistance. 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.
		Make	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.
		Evaluate	Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	Evaluating the work of others and receiving feedback on own work. Suggesting points for improvement.
	Knowledge	Technical	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	To know that mechanisms control movement. To understand that mechanisms 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.
		Additional	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.	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.

			Year 1	Year 3	Year 5
			Smoothies	Eating Seasonally	Developing a recipe
Cooking and Nutrition	Skills	Design	Designing smoothie carton packaging by-hand. Learning where and how fruits and vegetables grow.	Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.	Researching existing recipes. Suggesting alternative ingredients. Designing a jar label
		Make	Chopping fruit and vegetables safely to make a smoothie. Juicing fruits safely to make a smoothie. Identifying if a food is a fruit.	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.	Writing an alternative recipe. Understanding cross-contamination. Using preparation skills. Making a developed recipe.
		Evaluate	Tasting and evaluating different food combinations. Describing appearance, smell and taste. Suggesting information to be included on packaging. Comparing their own smoothie with someone else's.	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.	Explaining the farm to fork process. Analysing nutritional content.
	Knowledge		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 ow either above or below ground. To know that vegetables is any edible part of a plant.	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 is any edible part of a plant.	To know that beef comes from cows reared on farms. To know that recipes can be adapted to suit nutritional needs and dietary requirements. To know that nutritional information is found on food packaging. To know that coloured chopping boards can prevent cross-contamination. To know that food packaging serves many purposes.

			EYFS	Year 1
			Bookmarks	Puppets
Textiles	Skills	Design	Discussing what a good design needs. Designing a simple pattern with paper. Designing a bookmark. Choosing from available materials.	Using a template to create a design for a puppet.
		Make	Developing fine motor/cutting skills with scissors. Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. Using a prepared needle and wool to practise threading	Cutting fabric neatly with scissors. Using joining methods to decorate a puppet. Sequencing the steps taken during construction.
		Evaluate	Reflecting on a finished product and comparing to their design.	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.
	Knowledge		To know that a design is a way of planning our idea before we start. To know that threading is putting one material through an object	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

			Year 2
			Pouches
Textiles	Skills	Design	Designing a pouch.
		Make	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.
		Evaluate	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. .
	Knowledge		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.

			Year 3	Year 6
			Cushions	Bags
Textiles	Skills	Design	Designing and making a template from an existing cushion and applying individual design criteria.	Developing annotated sketches to communicate design ideas. Creating pattern pieces to use in design.
		Make	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 (Cushions)	Using a ruler to accurately measure and draw lines and marks. Using nets to create 3D objects
		Evaluate	Evaluating an end product and thinking of other ways in which to create similar items.	Reflecting on the functionality and aesthetics of products. Discussing reasons for design choices.
	Knowledge		To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. 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.	To know that nets can be folded to create 3D shapes. To know that pattern pieces are like nets/templates. To know how designers use pattern pieces when creating textiles products. To know that products are sometimes made in parts that are sewn together. To know that safety pins can hold fabric in place before sewing. To know that there are different types of stitches. To know what a running stitch is. To know that aesthetics is how something looks. To know that consistently sized stitches improve the aesthetic of a product. To know that the shape of an object can affect both its aesthetics and function.

			Year 4	Year 5
			Torches	Doodlers
Electrical systems (KS2 Only)	Skills	Design	Designing a torch, 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.
		Make	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.	Altering a product's form and function by tinkering with its configuration. Making a functional series circuit, incorporating a motor. Constructing a product with consideration for the design criteria. Breaking down the construction process into steps so that others can make the product.
		Evaluate	Evaluating electrical products. Testing and evaluating the success of a final product.	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.
	Knowledge	Technical	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.
		Additional	To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, and lens. To know facts from the history and invention of the electric light bulb(s) by Sir Joseph Swan and Thomas Edison.	To know that product analysis is critiquing the strengths and weaknesses of a product. To know that 'configuration' means how the parts of a product are arranged.

			Year 3	Year 6
			Wearable Technology	Navigating the World
Digital World (KS2 Only)	Skills	Design	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 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 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
		Make	Following a list of design requirements. Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.	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
		Evaluate	Analysing and evaluating wearable technology. Using feedback from peers to improve design.	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 Identifying key industries that utilise 3D CAD modelling and explain why Describing how the product concept fits the client's request and how it will benefit the customers 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
	Knowledge	Technical	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 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
		Additional	To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result. To understand what is meant by 'point of sale display.' To know that CAD stands for 'Computer-aided design'. To know what a focus group is by taking part in one.	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 determine which direction you are facing