Progression of Knowledge & Skills Overview 2025/26

	N	R	Y1	Y2
			Structures	
Design	**Junk modelling** • Making verbal plans and material choices. • Developing a junk model.	**Junk modelling** • Making verbal plans and material choices. • Developing a junk model. **Boats.** • Using knowledge from exploration to inform design.	**Stable structures** • 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.	**Baby bear's chair** • Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects.
Make	**Junk modelling** • Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together.	**Junk modelling** • Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together.	• **Stable structures** • Choosing between a small number of materials, ingredients or components. • Explaining their choices based on personal experiences.	**Baby bear's chair** • Making a structure according to design criteria. • Creating joints and structures from paper/card and tape.

	• Describing their junk model, and how they intend to put it together.	• Describing their junk model, and how they intend to put it together. **Boats.** • Making a boat that floats and is waterproof, considering material choices.	• 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.	• Building a strong and stiff structure by folding paper.
Evaluate	**Junk modelling** • 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.	**Junk modelling** • 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. **Boats** • 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.	**Stable structures** • Discussing existing products, saying what they like about them. • Comparing two products and discussing 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.	**Baby bear's chair** • 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.

		• Investigating how the shapes and structure of a boat affect the way it moves.		
Technical Knowledge	**Junk modelling** • To know there are a range of 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.	**Junk modelling** • To know there are a range of 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. **Boats** • To know that 'waterproof' materials are those which do not absorb water.	**Stable structures** • 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.	**Baby bear's chair** • 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 Knowledge		**Boats** • To know that some objects float and others sink. • To know the different parts of a boat.	**Stable structures** • 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.	**Baby bear's chair** • To know that natural structures are those found in nature. • To know that man-made structures are those made by people.

			• 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 make 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.	
	Y3	**Y4**	**Y5**	**Y6**
Design	**Constructing a caste** • Designing a castle with key features to appeal to a specific person/ purpose.	**Pavilions** • Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.		**Playgrounds** • Designing a playground featuring a variety of different structures, giving careful consideration to how the

	• 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.	• Building frame structures designed to support weight.		structures will be used, considering effective and ineffective designs.
Make	**Constructing a caste** • Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials.	**Pavilions** • 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.		**Playgrounds** • 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	**Constructing a caste** • 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.	**Pavilions** • Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.		**Playgrounds** • 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.
Technical Knowledge	**Constructing a caste** • To understand that wide and flat based objects are more stable.	**Pavilions** • To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.		**Playgrounds** • To know that structures can be strengthened by manipulating materials and shapes.

	• To understand the importance of strength and stiffness in structures.			
Additional Knowledge	**Constructing a caste** • 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.	**Pavilions** • 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.		**Playgrounds** • 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.

	N	R	Y1	Y2
Mechanisms				
Design				**Fairground wheel** • Conducting simple surveys or discussions to gather opinions on what others need or like in a design. • Knowing that a survey is used to find out what people like. • Using a simple design brief that outlines the intended use, target

				user, and key features of the product, to create simple design criteria. • Knowing that a design brief helps to decide what to make. • Knowing that design criteria are the steps for making a product successful. • Creating ideas with design criteria in mind. • Referring to specific parts of existing products when generating ideas. • Knowing that the design criteria help when thinking of ideas. • Using labels to explain parts of a design, label materials, etc. • Using labels to explain parts of a design, label materials, etc. • Knowing that drawings can help explain how something works. • Knowing that a label explains part of a drawing. **Making a moving monster** • Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in accordance with a design criteria.
Make				**Fairground wheel** • Choosing materials, ingredients or components from a wider range of materials, ingredients or components.

				• Explaining their choices based on the properties of materials and components. • Knowing some properties of materials like hard, soft, flexible, waterproof, strong etc. • Following and recalling simple safety instructions. • Knowing that some tools are sharp like scissors and knives. • Choosing known geometric shapes when making. • Beginning to shape objects to improve how they work. • Knowing the names of some geometric shapes: triangle, pyramid, square, cube, circle, sphere. • Considering balance in their finishing, like evenly spaced decoration. **Making a moving monster** • 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				**Fairground wheel** • Discussing a range of existing products and saying what they like and dislike about them.

				• Evaluating existing products against design criteria. • Evaluating their ideas and creations against simple design criteria. • Knowing that design criteria help to decide if their product is a success. • Suggesting improvements to their peers' designs and products. • Knowing that to improve means to make something better. • Knowing that their suggestions can improve someone else's work. **Making a moving monster** • Evaluating own designs against design criteria. • Using peer feedback to modify a final design.
Technical Knowledge				**Fairground wheel** • To know everyday objects have mechanisms. • To know many things that move have parts inside to help them work. • To know mechanisms usually limit unwanted movement. • To know everyday objects utilise wheels and axles. • To know wheels must be able to turn to work effectively. • To know axles allow wheels to turn without falling off. **Making a moving monster**

				• 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 Knowledge				**Fairground wheel** • To know the features of a fairground wheel include the wheel, frame, pods, a base, an axle and an axle holder. **Making a moving monster** • To know some real-life objects that contain mechanisms.
	Y3	**Y4**	**Y5**	**Y6**
Design		**Mechanical cars** • Taking part in structured brainstorming sessions.	**Gears and Pulleys** • Noticing wider-reaching problems or needs in the community.	

		• Developing drawing and sketching skills with a focus on clarity and simplicity. • Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. (e.g. sketches, cross-sectional diagram, thumbnail sketches and exploded diagrams) • Creating prototypes using materials with similar properties to their final design. • Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences. • Developing designs by adding detail and justifications about materials, tools, methods.	• Identifying a wide range of needs and potential barriers through market research. • Writing more complex problem statements that consider multiple factors and constraints. • Creating more complex design criteria that require considering detailed user needs, environmental impact, materials and cost. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. • Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design. • Using a series of prototypes to refine and improve their designs.	
Make		**Mechanical cars** • Following detailed safety instructions. • Using a ruler as a measuring tool with increasing accuracy by creating spaced marks using millimetres and measuring lengths of objects. • Handle different sizes and types of scissors with confidence. • With close supervision using a hot glue gun to join wooden materials (e.g. lolly sticks). • Selecting equipment required for a series of tasks based on the plan.	**Gears and Pulleys** • Consistently apply safety instructions. • Select appropriate scissors to handle delicate cutting tasks and challenging materials. • Cutting patterns and drawings accurately. • In supervised groups, using hot glue guns safely. • Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly.	

		Explain why each piece is suitable for each stage. • Selecting materials, components or ingredients from a wider choice but within a limited design space (e.g. seasonal ingredients from May and June in the UK).	• Choosing PVA glue over hot glue for its safety when joining materials in less intensive projects.	
Evaluate		**Mechanical cars** • Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements. • Reflecting on feedback to decide if and how it could be used to improve future iterations. • Investigating and analysing a range of existing products by looking at their functionality and appeal. • Analysing why specific products, designers or inventors are successful. • Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements. • Evaluating how effective their chosen materials and tools were in fulfilling the design brief.	**Gears and Pulleys** • Reflecting on the usability, aesthetics, innovation and sustainability of products and discussing how design choices impact these aspects. • Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. • Considering alternative materials, tools or techniques that could enhance the product. • Providing feedback that is helpful, specific, and encouraging. • Incorporating feedback from peers or users improve their product further, explaining the changes they made and the impact they had.	
Technical Knowledge		**Mechanical cars** • To understand that a mechanical system can allow us to move something more easily.	**Gears and Pulleys** • That mechanical systems that use gears in everyday objects (eg bicycle, clock). • That gears and pulleys allow us to transfer movement and force from one part of a mechanical system to another.	

		• To know that mechanical systems have more than one mechanism that moves to make them work. • To know that mechanical systems are often hidden in products to make them look more appealing.	• That gears allow us to increase the output of a mechanism.	
Additional Knowledge		**Mechanical cars** • To know that extra information on drawings or diagrams can help the user understand a design or idea. • To know that an exploded diagram shows how the parts of a product fit together. • To know that a prototype is a detailed model that helps a user understand how a product will work. • To know that a target audience is a group of people that might like the idea. • To know that different tools and equipment have different dangers. • To know that a ruler can be used to measure length. • To know that a hot glue gun can be used to join materials. • To know that better suggestions of improvements mean better feedback. • To know that they can choose to use feedback or not. • To know that some products are more successful than other because of their function.	**Gears and Pulleys** • That market research is a way of collecting information about problems or needs. • That constraints are things that might stop our ideas being successful. • That original and innovative ideas are different from what has been made before. • That annotations are detailed labels and comments on diagrams. • That risks are things that might happen. • That hot glue creates a strong bond quickly. • That is often better to choose safer equipment. • That sustainability means thinking about the materials that were used to make a product and how the product was made. • That their final product can still be improved by different materials or techniques. • That evaluating their designs in detail will help them understand its successful and less successful parts. • That feedback should be positive, helpful and specific.	

		• To know that choices of materials and equipment can affect the final product. • To know that feedback is ideas and suggestions from other people that can help improve their work.	• That explaining how they used feedback to improve their design can help them create better products in the future	

	N	R	Y1	Y2
	Electrical systems			
Design **Make** **Evaluate** **Technical Knowledge** **Additional Knowledge**	**KS2 Only**			
	Y3	**Y4**	**Y5**	**Y6**
Design		**Torches** • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	**Doodlers** • 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		**Torches** • 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.	**Doodlers** • 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		**Torches** • Evaluating electrical products. • Testing and evaluating the success of a final product.	**Doodlers** • 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.	
Technical Knowledge		**Torches** • 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.	**Doodlers** • 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 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 a motorised product is one which uses a motor to function.	
Additional Knowledge		**Torches** • 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.	**Doodlers** • 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.	

	N	R	Y1	Y2
Cooking and nutrition				
Design			**Smoothies** • Designing smoothie carton packaging by-hand. • Learning where and how fruits and vegetables grow.	
Make			**Smoothies** • Chopping fruit and vegetables safely to make a smoothie. • Juicing fruits safely to make a smoothie. • Identifying if a food is a fruit.	
Evaluate			**Smoothies**	

			• 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.	
Knowledge			**Smoothies** • 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 are any edible part of a plant.	
	Y3	**Y4**	**Y5**	**Y6**
Design	**Eating seasonally** • Describing how climate affects where foods grow.		**Developing a recipe** • Researching existing recipes. • Suggesting alternative ingredients. • Designing a jar label.	
Make	**Eating seasonally** • Identifying seasonal ingredients from the UK. • Following the instructions within a recipe. • Tasting seasonal ingredients.		**Developing a recipe** • Writing an alternative recipe. • Understanding cross-contamination. • Using preparation skills.	

	• Peeling foods by hand or with a peeler. • Cutting ingredients safely. • Choosing ingredients based on a design brief.		• Making a developed recipe.	
Evaluate	**Eating seasonally** • Describing the texture and flavour of ingredients. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment.		**Developing a recipe** • Explaining the farm to fork process. • Analysing nutritional content.	
Knowledge	**Eating seasonally** ● To know that seasonal means foods that grow in a given season in a given country. ● To know some seasonal foods that grow in the UK and what season they grow in. ● To know that eating seasonal foods can have a positive impact on the environment. ● To know how to describe the flavour and texture of foods. ● To know how to cut a peel safely. ● To know that the appearance of food is as important as taste. ● To know that similar coloured fruits and vegetables often have similar nutritional benefits.		**Developing a recipe** ● 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.	

	N	R	Y1	Y2
Textiles				
Design		**Bookmarks** • Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials.	**Puppets** • Using a template to create a design for a puppet.	
Make		**Bookmarks** • 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.	**Puppets** • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing the steps taken during construction.	
Evaluate		**Bookmarks** • Reflecting on a finished product and comparing to their design.	**Puppets** • Reflecting on a finished product, explaining likes and dislikes.	
Knowledge		**Bookmarks** • 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.	**Puppets** • 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.	
	Y3	**Y4**	**Y5**	**Y6**
Design				**Bags** • Developing annotated sketches to communicate design ideas. • Creating pattern pieces to use in design
Make				**Bags** • Using a ruler to accurately measure and draw lines and marks. • Using nets to create 3D objects.
Evaluate				**Bags** • Reflecting on the functionality and aesthetics of products. • Discussing reasons for design choices.
Technical Knowledge				**Bags** • Using pins effectively to secure a template to fabric without creases or bulges. • Threading needles independently. • Tying knots at the end of thread to secure it. • Selecting textiles and buttons to improve aesthetics and function. • Attaching objects like buttons using thread.

Additional Knowledge				**Bags** • 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.

	N	R	Y1	Y2
	Digital world			
Design				
Make				

Evaluate **Technical Knowledge** **Additional Knowledge**	**KS2 Only**			
	Y3	**Y4**	**Y5**	**Y6**
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 combining 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.
Technical Knowledge	• 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 Knowledge	• To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result.			• To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request.

	• 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 '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.