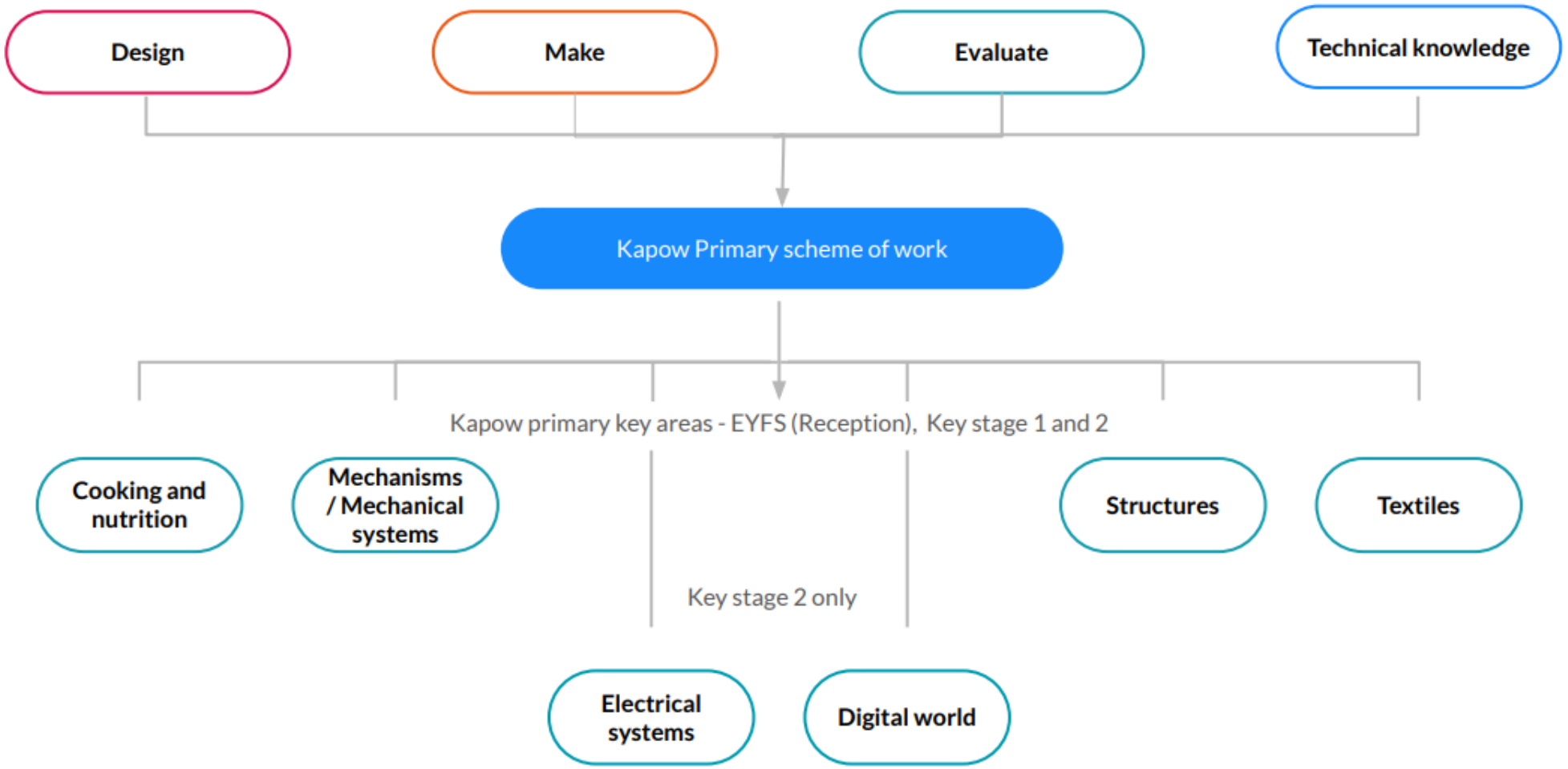
LincolnCarlton ACADEMY

The Design and Technology Curriculum 2024 - 2025

Intent	Our Design and Technology curriculum aims to: • Place reading at its heart by providing as many opportunities as possible for children to read in lessons. • Lay the foundations that will prepare our children for the fast-moving world they are growing into and give them the knowledge they will need to take up roles as the designers and engineers of the future. • Inspire children to be innovative and creative thinkers who have an appreciation for the product design cycle through ideation, creation, and evaluation. • Develop children's confidence to take risks, through drafting design concepts, modelling, and testing and to be reflective learners who evaluate their work and the work of others. • Build an awareness of the impact of design and technology on our lives and encourage children to become resourceful, enterprising citizens who will have the skills to contribute to future design advancements.
Implementation	The Design and technology National curriculum outlines the three main stages of the design process: design, make and evaluate. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical, and technical understanding required for each strand. Cooking and nutrition has a separate section, with a focus on specific principles, skills and techniques in food, including where food comes from, diet and seasonality. The National curriculum organises the Design and technology attainment targets under four subheadings: Design, Make, Evaluate, and Technical knowledge. We have taken these subheadings to be our Primary strands: • Design • Make • Evaluate • Technical knowledge It has a clear progression of skills and knowledge within these strands and key areas across each year group. Our Progression of skills shows the skills and knowledge that are taught within each year group and how these skills develop to ensure that attainment targets are securely met by the end of each key stage. There are six key areas that pupils revisit throughout their time in primary school: • Cooking and nutrition • Mechanisms/ Mechanical systems • Structures • Textiles • Electrical systems (KS2 only) • Digital world (KS2 only) Pupils respond to design briefs and scenarios that require consideration of the needs of others, developing their skills in the six key areas. Each of our key areas follows the design process (design, make and evaluate) and has a particular theme and focus from the technical knowledge or cooking and nutrition section of the curriculum. It is a spiral curriculum, with key areas revisited again and again with increasing complexity, allowing pupils to revisit and build on their previous learning. Lessons incorporate a range of teaching strategies from independent tasks, paired and group work including practical hands-on, computer-based and inventive tasks. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Knowledge organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary. Strong subject knowledge is vital for staff to be able to deliver a highly effective and robust Design and technology curriculum.

Impact	Children following our Design and Technology Curriculum will: • Understand the functional and aesthetic properties of a range of materials and resources. • Understand how to use and combine tools to carry out different processes for shaping, decorating, and manufacturing products. • Build and apply a repertoire of skills, knowledge and understanding to produce high quality, innovative outcomes, including models, prototypes, CAD, and products to fulfil the needs of users, clients, and scenarios. • Understand and apply the principles of healthy eating, diets, and recipes, including key processes, food groups and cooking equipment. • Have an appreciation for key individuals, inventions, and events in history and of today that impact our world. • Recognise where our decisions can impact the wider world in terms of community, social and environmental issues. • Self-evaluate and reflect on learning at different stages and identify areas to improve. • Meet the end of key stage expectations outlined in the National curriculum for Design and technology.

How is the Design and technology scheme of work organised?



How does Kapow Primary's scheme of work align with the National Curriculum?

Our scheme of work fulfils the statutory requirements outlined in the **national curriculum (2014)**. The national curriculum Programme of study for Design and technology aims to ensure that all pupils:

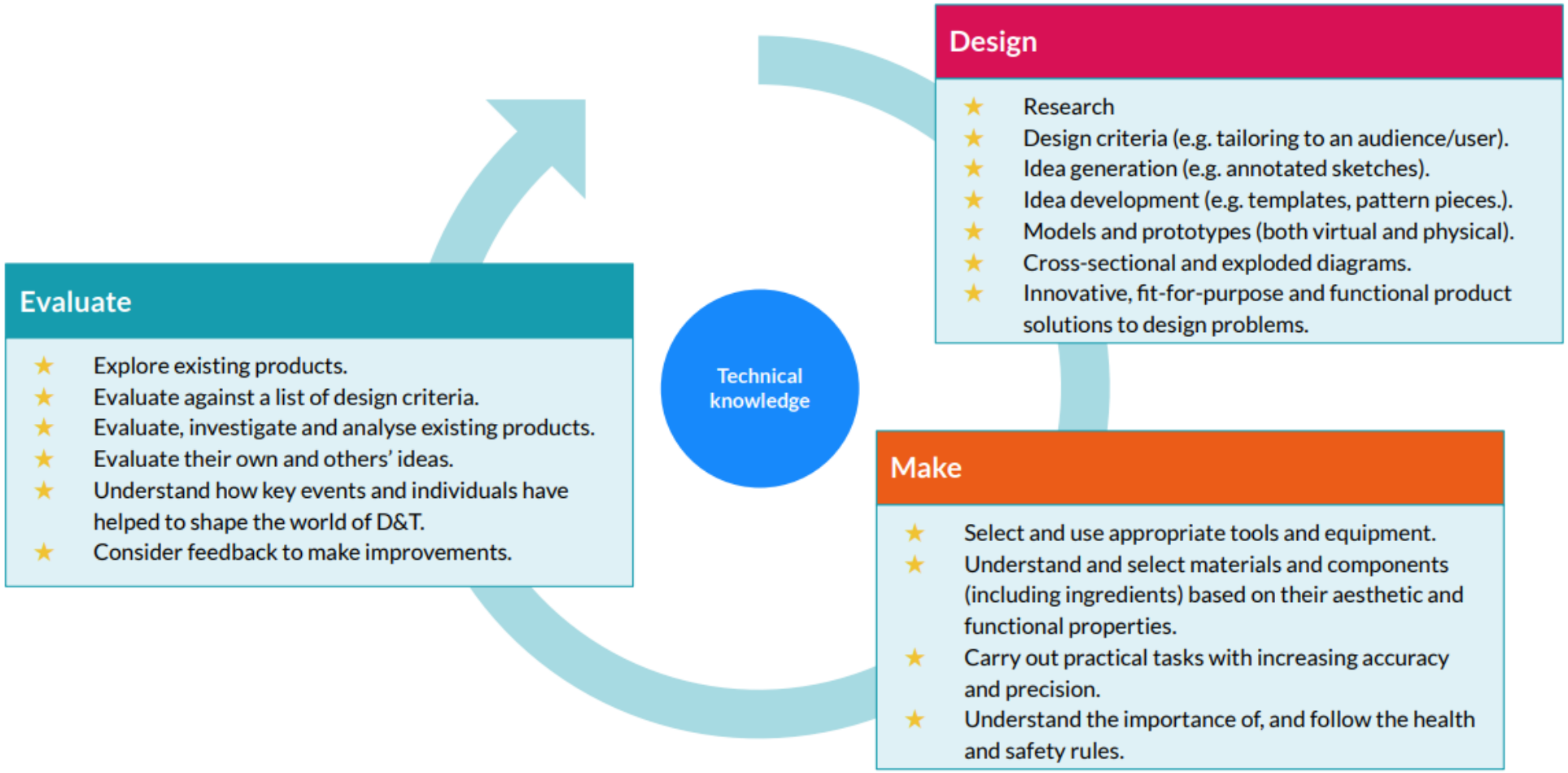
- ★ develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- ★ build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- ★ critique, evaluate and test their ideas and products and the work of others.
- ★ understand and apply the principles of nutrition and learn how to cook.
  (*This aim is linked to the four strands, but is primarily met by teaching units from our Cooking and nutrition key area)

We have identified four key strands which run throughout our scheme of work:

- **Design**
- **Make**
- **Evaluate**
- **Technical knowledge**

The design process

The Design and technology National Curriculum outlines the three main stages of the design process: design, make and evaluate. Each Kapow Primary unit follows these stages, to form a full project. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding, required for each strand.



Long Term Plan for Design and Technology 2024 - 2025

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Structures: Junk Modelling In this unit, pupils explore and learn about various types of permanent and temporary join. They are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.			Structures: Boats Children explore what is meant by 'waterproof', 'floating' and 'sinking', then experiment and make predictions with various materials to carry out a series of tests. They learn about the different features of boats and ships before investigating their shape and structures to build their own.	Cooking and Nutrition: Designing and making a rainbow salad	**DT Week:** **Textiles: Bookmarks** Pupils develop and practise threading and weaving techniques using various materials and objects. They look at the history of the bookmark from Victorian times versus modern-day styles. The pupils apply their knowledge and skills to design and sew their own bookmarks.
Year 1	Structures: Constructing windmills Design, decorate and build a windmill for a mouse client to live in.		Textiles: Puppets Explore different ways of joining fabrics before creating their own hand puppets (aliens) ***Computing – Digital World Programming Beebots**		Cooking and Nutrition: Smoothies Preparing foods by cutting and juicing and selecting fruits and vegetables to create a smoothie to meet a design brief. ***PSHE – Food – What constitutes a healthy diet?**	**DT Week:** **Mechanisms: Wheels and Axles** Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle holders work. Design and make a moving vehicle**.**
Year 2		Structures: Baby Bear's Chair Help Baby Bear by making him a brand new chair. Explore ways of building it so it is strong.	***Science – Animals including humans – Food – Eating the right amount of different foods**		Mechanisms: Fairground Wheel Design and create a ferris wheel so that the wheel rotates. Select materials to cut and join.	Mechanisms: Making a moving shark Create a moving toy using levers, linkages and pivots. **DT Week: Textiles** **Pouches** Learn how to sew a running stitch ready to design, make and decorate a pouch using a template.
Year 3				Structures: Constructing a castle Use configurations of handmade nets and recycled materials to make towers and turrets.	Digital World: Wearable Technology Children will design a piece of wearable technology and programme a micro:bit. ***Science – Food – Different food types and nutrition**	**DT Week: Textiles** **Cross stitch and applique** Learn and apply two new sewing techniques – cross-stitch and appliqué. Utilise these new skills to design and make a cushion.
Year 4	Digital World Mindful Moments Timer Design, programme and evaluate a mindfulness timer made from a micro:bit.			Mechanical Systems: Making a slingshot car Design and make the body of a vehicle using nets to create a chassis and make a launch mechanism.	Electrical Systems: Torches Apply scientific understanding of electrical circuits to create a torch, designing and evaluating their product against set design criteria	**DT Week: Structures: Pavillions** Explore pavilion structures, learn about what they are used for and investigate how to create strong and stable structures.

Year 5	Electrical Systems: Doodlers Explore series circuits further and introduce motors. Investigate an existing product which uses a motor and work out how it has been constructed.		***Computing – Digital World – Crumble Kits**	Mechanical Systems: Making a pop-up book Incorporate a range of mechanisms and decorative features including: structures, levers, sliders, layers and spacers.		Cooking and Nutrition: Developing a Recipe Learning a simple bolognese recipe and developing it. **DT Week: Textiles: Make a stuffed toy** Design a stuffed toy and make decisions on materials, decorations and attachments (appendages), after learning how to sew a blanket stitch.
Year 6		Textiles: Waistcoats for an evacuee Select suitable fabrics, using templates, pinning, decorating and stitching to create a waistcoat.	Digital World: Navigating the World Programme a navigation tool to produce a multifunctional device for trekkers. Create a 'pitch' to sell the product.	***Science – Food – The impact of diet on the human body**		Structures: Playgrounds Design, build and improve a variety of playground structures. **DT Week: Cooking and Nutrition: Come Dine with me**

Design and Technology and children with Special Educational Needs

The graduated approach handbook for SEND students should be used to provide the simple, everyday strategies that should be employed to support learners in the classroom. The strategies below are aimed more specifically at adapting the Design and Technology curriculum for SEND learners.

Use clear and simple language and avoid jargon or overly complex terminology.	Keeping instructions and content straightforward will help them understand better.	Have a range of specialist aids to be offered where applicable including: jigs to aid cutting, templates, ready-made parts. Generic aids may include: a range of mark-making tools, non-slip mats, a range of scissors.	Identify risk points in the lesson, visit or field trip – eg for pupils with noise or smell sensitivity.	Monitor activities and experiments that require mobility and dexterity that some pupils do not have.	Use storyboarding to show instructions.
Use auditory forms of instructions.	Use video footage to support pupils understanding of key skills, techniques when using a range of tools, equipment.	Provide checklists for process steps.	Use ICT to support pupils in generating ideas/concepts.	Steps and processes to be broken down into easy manageable chunks for pupils to be able to understand and follow.	Simple audio recorders can be used instead of written notes.
Use of Clicker to communicate design ideas and evaluations.	Record oral responses where written work is a barrier.	Hearing impaired pupils may find equipment very noisy and may choose to turn hearing aids/transmitters off.	Use a digital camera to capture each stage of the making process.		Use targeted questioning to check the understanding of students.

Progression in Structures

		EYFS	Year 1	Year 2	Year 3	Year 4	Upper Key Stage Two
		Junk Modelling	Constructing a Windmill	Baby Bear's Chair	Constructing a Castle	Pavilions	Playgrounds
Knowledge		• 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 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. • To know that a structure is something built for a reason. • To know that stable structures do not topple. • To know that adding weight to the base of a structure can make it more stable. • To know that design criteria is a list of points to ensure the product meets the client's needs and wants. • 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.	• 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 that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures. • 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.	• 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 a pavilion is a 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 know that structures can be strengthened by manipulating materials and shapes. • 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.
Skills	Design	• Making verbal plans and material choices. • Developing a junk model.	• Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design.	• Generating and communicating ideas using sketching and modelling.	• 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.	• 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, considering how the structures will be used, considering effective and ineffective designs.
	Make	• Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety	• Making stable structures from card. • Following instructions to cut and assemble the	• Making a structure according to design criteria. • Creating joints and	• Constructing a range of 3D geometric shapes using nets. • Creating special features for	• Creating a range of different shaped frame structures. • Making a variety of free-standing frame structures of	• Building a range of play apparatus structures drawing upon new and

		of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together.	supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure. • Finding the middle of an object. • Puncturing holes. • Adding weight to structures. • Creating supporting structures. • Cutting evenly and carefully.	structures from paper/card and tape. • Building a strong and stiff structure by folding paper.	individual designs. • Making facades from a range of recycled materials.	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.	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	• 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.		•	• 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.	• 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.

Progression in Mechanisms and Mechanical Systems

		Year 1	Year 2	Lower Key Stage One	Upper Key Stage Two
		Wheels and Axles	Fairground Wheel	Slingshot Car	Pop-Up Books
Knowledge		• 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. • To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles.	• 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.	• 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 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 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.
Skills	Design	• To know the features of a fairground wheel include the wheel, frame, pods, a base an axle and an axle holder. •	• 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. • Knowing that drawings can help explain how something works.	• 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.	• 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.

			• Knowing that a label explains part of a drawing.		

	Make	• Adapting mechanisms, when:
		  • they do not work as they should.
		  • to fit their vehicle design.
		  • to improve how they work after testing their vehicle.
			• 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.
				• Measuring, marking, cutting and assembling with increasing accuracy.
				• Making a model based on a chosen design.
					• Following a design brief to make a popup 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	• Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.	• 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 improve means to make something better. • Knowing that their suggestions can improve someone else's work.	• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	• N/A

Progression in Electrical Systems – KS2 Only

		Year 4	Year 5	Year 6
		Torches	Doodlers	Steady Hand Game
Knowledge		• 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 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.	• 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. • 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.	• 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.
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.	• To understand the diagram perspectives 'top view', 'side view' and 'back'.	• 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.
	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.	• 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.
	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.	• Testing own and others finished games, identifying what went well and making suggestions for improvement.

Progression in Cooking and Nutrition

		EYFS	Year 1	Lower Key Stage Two	Upper Key Stage Two
		Rainbow Salad	Smoothies	Eating Seasonally	Developing a Recipe
Knowledge		• To know that knives are a tool, not a toy. • To know you should never walk around with a knife in your hand. • To know to hold whatever you are cutting with your knife-free hand, making sure you keep your fingers out of the way of the blade. • To know how to use a butter knife or plastic knife to safely cut. • To know that some ingredients can be ripped and do not require the use of a knife. • To know that fruits and vegetables are needed as part of a healthy and balanced diet.	• 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 is any edible part of a plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	• 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 know that eating seasonal foods can have a positive impact on the environment. • To know that similar colored fruits and vegetables often have similar nutritional benefits. • To know that the appearance of food is as important as taste.	• To know that recipes can be adapted to suit nutritional needs and dietary requirements. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. • To know that coloured chopping boards can prevent cross-contamination. • To know that nutritional information is found on food packaging.
Skills	Design	• Design a rainbow salad by drawing it. Include at least three different coloured vegetables.	• Design smoothie carton packaging (hand drawn).	• Create a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.	• Adapt a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Write an amended method for a recipe to incorporate the relevant changes to ingredients.
	Make	• Tear vegetables such as lettuce and spinach. • Use a butter knife to cut soft fruits and vegetables. • Present a salad on a serving plate.	• Chop fruit and vegetables safely to make a smoothie. • Identify if a food is a fruit or a vegetable. • Learn where and how fruits and vegetables grow.	• Know how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination. • Follow the instructions within a recipe.	• Cut and prepare vegetables safely. • Use equipment safely, including knives, hot pans and hobs. • Know how to avoid cross-contamination. • Follow a step-by-step method carefully to make a recipe.
	Evaluate	• Say which parts of the salad you liked and disliked.	• Suggesting information to be included on packaging.	• Establish and using design criteria to help test and review dishes. • Describe the benefits of	• Identify the nutritional differences between different products and

		• Suggest another ingredients that could be added to improve the salad.		seasonal fruits and vegetables and the impact on the environment. • Suggest points for improvement when making a seasonal tart.	recipes. • Identify and describe healthy benefits of food groups.

Progression in Textiles

		EYFS	Year 1	Year 2	Lower Key Stage Two	Year 5	Year 6
		Bookmarks	Puppets	Pouches	Applique Cushions	Stuffed Toys	Waistcoats
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.	• 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.	• 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 blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. • To understand that it is easier to finish simpler designs to a high standard. • To know that soft toys are often made by creating appendages separately and then attaching them to the main body. • To know that small, neat stitches which are pulled taut are important to • ensure that the soft toy is strong and holds the stuffing securely.	• 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.
Skills	Design	Discuss what a good design needs. Design a simple pattern with paper. Choose from available materials.	• Use a template to create a design for a puppet.	• Design a pouch.	• Design and make a template from an existing cushion and apply individual design criteria.	• Design a stuffed toy, considering the main component shapes required and create an appropriate template. • Consider the proportions of individual components.	• Design a waistcoat in accordance to a specification linked to set of design criteria. • Annotate designs, to explain their decisions.
	Make	• Develop fine motor and cutting skills with scissors. • Explore fine motor, threading and weaving (under, over technique) with a variety of materials. • Use a prepared needle and wool to practise threading (plastic needle with large eye)	• Cut fabric neatly with fabric scissors. • Choose a suitable technique for joining two pieces of fabric (glueing, pinning, stapling) • Use joining methods to decorate a puppet (glueing) • Sequence steps for construction.	• Select and cut fabrics for sewing. • Decorate a pouch using fabric glue or running stitch. • Thread a needle. • Sew running stitch, with evenly spaced, neat, even stitches to join fabric. • Neatly pin and cut fabric using a template.	• Follow design criteria to create a cushion. • Select and cut fabrics with ease using fabric scissors. • Thread needles with greater independence. • Tie knots with greater independence. • Sew cross stitch to join fabric. • Decorate fabric using appliqué.	• Create a 3D stuffed toy from a 2D design. • Measure, mark and cut fabric accurately and independently. • Create strong and secure blanket stitches when joining fabric. • Thread needles independently. • Use appliqué to attach pieces of fabric	• Use a template when cutting fabric to ensure they achieve the correct shape. • Use pins effectively to secure a template to fabric without creases or bulges. • Mark and cut fabric accurately, in accordance with their design. • Sew a strong running stitch, making small, neat

					• Completing design ideas with stuffing and sewing the edges.	decoration. • Sew blanket stitch to join fabric. • Apply blanket stitch so the spaces between the stitches are even and regular.	stitches and following the edge. • Tie strong knots. • Decorate a waistcoat, attaching features (such as appliqué) using thread. • Finish the waistcoat with a secure fastening (such as buttons). • Learn different decorative stitches. • Sew accurately with evenly spaced, neat stitches.
	Evaluate	• Reflect on a finished product and compare to the original design.	• Reflect on a finished product, explaining likes and dislikes.	• Troubleshoot scenarios posed by teacher. • Evaluate the quality of the stitching on others' work. • Discuss as a class, the success of their stitching against the success criteria. • Identify aspects of their peers' work that they particularly like and why.	• Evaluate an end product and think of other ways in which to create similar items.	• Test and evaluate an end product and giving point for further improvements.	• Reflect on their work continually throughout the design, make and evaluate process.

Progression in Digital World – KS2 Only

		Year 3	Year 4	Year 6
		Wearable Technology	Mindful Moments Timer	Navigating the World
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 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.	• 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. • 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.
Skills	Design	•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. •	• 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 by using computer-aided design (CAD), to produce a logo. • Following a list of design requirements.	• 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 maneuvering 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.	• Developing a prototype case for my mindful moment timer. • 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.	• 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		• 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).	• 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 explaining 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

			• Finding and fixing the bugs (debug) in my code. • Using an exhibition to gather feedback. • Gathering feedback from the user to make suggested improvements to a product.	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 pitch.