Benjamin Adlard Primary School
DT Key Knowledge Progression Document (KKP)

Rationale

This Design and Technology Key Knowledge Progression (KKP) document sets out the core knowledge pupils will learn from Nursery to Year 6. It ensures all knowledge is taught sequentially, builds cumulatively, and reflects the ambition of the National Curriculum.

Types of Knowledge in DT

Substantive Knowledge (What pupils know about the world of design and technology)

Substantive Knowledge

This is the factual and conceptual knowledge that helps pupils understand art as a discipline. It is organised as:

- Sticky (must be remembered long term), or
- Fingertip (used when needed, but not essential to retain forever).

This means substantive knowledge is already broken down into smaller "sticky" and "fingertip" chunks, so teachers know exactly what pupils must keep in long-term memory and what they can look up or relearn quickly.

Sticky Knowledge

Sticky knowledge is the non-negotiable core that pupils are expected to retain and use in future years. It is rehearsed, revisited and checked.

Fingertip Knowledge

Fingertip knowledge is knowledge that pupils do not need to store permanently, but should be able to find and use when needed.

It is still important, but it is not assessed as long-term recall.

Teachers signpost fingertip knowledge and model how to access it, but do not overload pupils' memory with details that do not need to be permanent. Some fingertip knowledge later becomes sticky if it is essential for future learning.

Procedural Knowledge (The 'how to' knowledge – linked to Designing, Making and Evaluating)

This is the practical, technical and method-based knowledge pupils need in order to apply their substantive knowledge.

It includes the routines, methods and processes required to design, make and evaluate products effectively.

Example: how to join materials using appropriate techniques; how to measure and cut accurately; how to adapt a recipe; how to debug a program in digital systems.

Procedural knowledge is not free-standing; pupils cannot perform a skill without having first acquired the relevant substantive knowledge. Therefore, skills develop only as substantive knowledge deepens, and both are specified clearly in this KKP.

Disciplinary Knowledge (How designers think, behave and make decisions)

This refers to how pupils consider problems, evaluate products, and apply iterative thinking—mirroring the habits of real-world designers, engineers and creators.

Disciplinary knowledge includes:

- understanding that design decisions rely on purpose, function and user needs
- recognising how products are developed through testing, refining and evaluation
- considering aesthetics, accuracy, sustainability and impact on the user
- applying logical decision-making in digital programming and mechanical systems

A separate Disciplinary Knowledge Progression outlines how this thinking develops across year groups (EYFS–KS2), ensuring pupils increasingly behave like designers rather than simply completing tasks.

Ambition and Alignment

Design and Technology begins in the Early Years Foundation Stage through the statutory area Expressive Arts and Design (Exploring and Using Media and Materials; Creating with Materials), where children learn early knowledge of joining, constructing, using tools, and cooking, with supporting links to Physical Development and Understanding the World.

- At Key Stage 1 and 2, the KKP takes full account of the National Curriculum strands of:
  Design
- Make
- Evaluate
- Technical Knowledge
- Cooking and Nutrition

These strands are embedded within each area of DT taught (Mechanisms, Structures, Textiles, Cooking, Electrical Systems, Digital Systems).

Ambition beyond the National Curriculum

In some cases, the KKP deliberately goes further than the National Curriculum to secure stronger readiness for KS3. For example:

- Pupils learn the difference between flexible and rigid wood in Year 2.
- Mechanisms progress into full automata systems (cams and followers) in Year 6.
- Digital systems include selection, variables, loops and microcontroller programming (Year 5–6).
- Cooking includes healthy adaptations, ethical considerations and flavour combinations.

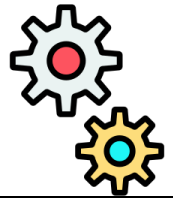
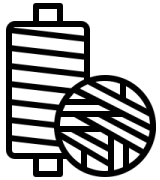
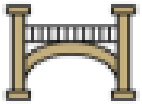
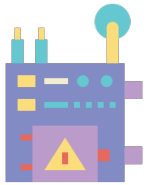
Such ambition ensures deep understanding and prepares children for secondary education.

Early Years Framework		
Strand	Early Years Statutory Framework: Educational Programme **Expressive Art and Design**	Early Learning Goal **Creating with Materials**
Early Years	The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories

National Curriculum Subject Content				
	Design	**Make**	**Evaluate**	**Technical Knowledge**
KS1	• design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	• select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	• explore and evaluate a range of existing products • evaluate their ideas and products against design criteria	• build structures, exploring how they can be made stronger, stiffer and more stable • explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.
KS2	• use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	• select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	• investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • understand how key events and individuals in design and technology have helped shape the world	• apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products.

Key Concepts

Through collaboration with subject leaders and subject specialists across our secondary schools, each subject has identified key concepts (big ideas) for their subject. These key concepts are the skills and knowledge essential to pupils achieving and exceeding expected standards in that specific subject. Key concepts are subject specific and build progressively as pupils move through the school. When pupils encounter a key concept, they will revisit other topics where they learnt about the same concept to enable them to make connections between different learning and build the schema they need.

Design Technology				
				
Mechanics	Textiles	Structure	Electric and digital systems	Cooking and nutrition

Key concepts (Big Ideas) in **Design and Technology**

Pupils will become increasingly competent in designing, making and evaluating products. They will investigate how design has been used to solve problems and create products and structures in the real world, including the techniques used by designers to improve looks and functionality. They will have the opportunity to design their own products in response to design briefs, learn and experiment with a range of techniques before making and evaluating products.

Mechanics

Pupils will gain an understanding of how different mechanisms work, evaluate products with different mechanisms and design and make working products to fit a design brief. They will gain the technical knowledge needed to make different mechanisms work effectively.

Textiles

Pupils will gain the technical knowledge needed to work with textiles such as stitching, sewing and threading. They will study textile designs and how to make products which are practical as well as stylish and then apply this learning to their own designs and products.

Structures (please note this concept is taught through the woodcraft units)

Pupils will learn the technical knowledge used by designers to make structures which are strong and stable. They will learn and apply strengthening techniques, explore the benefits of different shapes and materials and apply this to their own designs and products.

Electric and digital systems

Pupils will learn how electronics and digital technologies are used when designing and creating products. They will gain the technical knowledge needed to programme devises and to make use of electric circuits including switches to power and control a product.

Please note digital systems concepts are taught through the computing curriculum.

Cooking and nutrition

Pupils will learn where food comes from and how nutritional information can be used to plan a balanced and healthy diet. They will also learn techniques needed to prepare and cook food safely and design dishes and meals for specific purposes.

Knowledge and skills sequencing	DESIGN AND TECHNOLOGY				
	Nursery	**Reception**	**Year 1**	**Year 4**	**Year 6**
Mechanisms Design 	• Talk about what they will make and how they will make it. • Begin to talk about which parts move.	• Draw simple plans, including moving parts with some labels using initial sound and phonetic attempts.	• Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move. • Create clearly labelled drawings which illustrate movement • Label and know the parts of a vehicle are called (wheel, axle, axle holder, body chassis) • Know when creating designs, that the vehicle needs; wheel, axle, axle holder, body/chassis to function/move. • Know when designing vehicle, the axel, axel holder and wheels should be attached to the bottom of the vehicle.	• Design a shape that reduces air resistance. • Draw a net to create a structure from. • Choose shapes that increase or decrease speed as a result of air resistance. • Personalise a design. • Design the vehicle using a front view and side view with detailed annotations.	• Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement • Understanding how linkages change the direction of a force • Making things move at the same time • Understanding and drawing cross-sectional diagrams to show the inner-workings of the automata.
Mechanisms Make 	• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.	• Make the designs created using simple plans which include moving parts	• Follow a design to create moving models • Know when making the vehicle that the axel should be cut to the correct length so that the wheels are on the side of the vehicle • Know when making the vehicle the axel holder should be secure on the bottom of the vehicle • Know when making the vehicle that the axel should sit inside the axel holders • Know when making the vehicle the wheels should be at either end of the axels • Know when making the vehicle you need four wheels on your vehicle to make it move	• Measure, mark, cut and assemble with increasing accuracy. • Make a model based on a chosen design.	• Measuring, marking and checking the accuracy of the jelutong and dowel pieces required • Assembling components accurately to make a stable frame • Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set • Using a variety of temporary and permanent joining techniques, including framework, materials and textiles

			• Know when making the vehicle that you need equal amount of wheels on either side of the vehicle to balance it		• Using a bench hook to saw safely and effectively.
Mechanisms Evaluate 	• Discuss what they have made.	• Discuss what they have made and which parts move • Identify parts that are not moving and begin to recognise why.	• Test a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Test mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move	• Evaluate the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance • Assess and evaluate design ideas and models against a list of design criteria.	• Evaluating the work of others and receiving feedback on own work • Applying points of improvements. • Describing changes they would make/do if they were to do the project again.

Mechanisms Substantive knowledge **Pupils will know....** 	• Objects can move in different ways, and some objects have parts that help them move.	• Objects move because of how they are designed and made.	• Mechanisms allow objects to move; wheels and axles help things travel smoothly.	• Mechanisms are systems of parts that work together to produce movement; speed and movement are affected by shape and air resistance.	• Automata mechanisms convert types of movement; cams and followers create complex motion.

Mechanisms Sticky Knowledge 	• Know that objects can have moving parts such as wheels on a car. • Know different objects can move in different ways such as up and down, rolling, sliding	• Know that some objects move because of how they are made.	• Know that for a wheel to move it must be attached to an axle. • Know a wheel needs to be round to rotate. • Know an axel moves within an axel holder. • Know that the wheels and axle can rotate. • Know that the axle holder is fixed to the objects body (doesn't move)	• Know that mechanisms are a collection of moving parts that work together to produce movement. • Know nets are flat shapes that can be turned into 3D structures. • Know that all moving things have kinetic energy. • Know that kinetic energy is the energy that something (object/person) has by being in motion. • Know that air resistance is the level of drag on an object as it is forced through the air. • Know that the shape of a moving object will affect how it moves due to air resistance. • Know that larger objects move slower than smaller objects through the air because they have great air resistance. • Know that smaller shapes create less air resistance and move faster through the air.	• Know that the mechanism in an automata uses a system of cams, axles and followers. • Know that different shaped cams produce different shaped outputs. • Know the shape of the cam changes the movements of the follower. • Know cams can change rotational movement to linear movement.

Mechanism Fingertip Knowledge 			• Know that rotate means to turn.	• Know the shape of the body should not slow the car down and should be attached to the chassis. • Know that a 'slingshot' car will work by storing kinetics energy in the elastic band before launching. • Know each panel should attach using tabs. • Know that a birds-eye view means a view from a high angle (as if a bird in flight). • Know that aesthetics means how an object or product looks in design and technology. • Know that graphics are images which are designed to explain or advertise something.	• Know a automata is a hand powered mechanical toy. • Know that a cross-sectional diagram shows the inner workings of a product • Know that increasing the thickness of the cam by using corrugated card or stick the same shape cams together. • Know that it is important to secure the cam to the axel so the cam rotates with the axel. • Know that it is vital the frame components are accurate to ensure they fit together well.

Disciplinary knowledge 	• Know we can try ideas to make things move. • Know changing our ideas can help things work better.	• Know joining parts differently can help things move. • Know testing and changing ideas can make moving things work better.	• Know designers test ideas and change them to help the vehicle move better. • Know design choices can affect how smoothly and safely a vehicle moves.	• Know designers improve prototypes so they work well for users. • Know designers test and adapt ideas to help the vehicle move faster or further. • Know design choices, including shape and alignment, can affect speed and control.	• Know designers refine and justify decisions so products work for real users. • Know testing and improving prototypes can make movement smoother and more reliable. • Know careful design choices help a mechanism create the type of movement intended.
Mechanisms Progression summary 	Across the school, children develop their understanding of how objects move and what makes movement possible. In Nursery and Reception, learning begins with simple observations: objects move in different ways, some have moving parts, and movement depends on how things are made. In Year 1, children move from noticing movement to understanding why it happens, learning the core mechanism of wheels, axles and axle holders. By Year 4, pupils extend this technical understanding into more complex mechanisms. They learn that mechanisms involve collections of moving parts, that movement involves forces such as air resistance, and that the shape and structure of a product affects how it moves. They apply this knowledge when designing and making vehicles and slingshot cars, combining movement, structure and materials By Year 6, pupils work confidently with more advanced mechanical systems, such as cams, followers and axles. They understand how circular movement converts to linear movement and how different cam shapes create different outputs. They develop greater precision, using cross-sectional diagrams, accurate frame construction and component strengthening. Their learning becomes increasingly conceptual, linking forces, motion and mechanism design, preparing them for KS3 engineering and physics.				

Knowledge and skills sequencing	DESIGN AND TECHNOLOGY						
	Nursery	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Textiles Design 		• Discuss what a good design needs. • Draw a puppet as part of a design.	• Use a template to create a design for a puppet. • Draw decorations needed to create characters. • Label the joining technique chosen.	• Design a pouch using descriptive labels • Label the design to show it has one open side. • Label materials for decorations using descriptive language e.g. brown buttons	• Use a design criteria as a guide to ensure the children's design ideas are successful but not defined by individual criterion points. • Use symmetrical and asymmetrical designs when designing the product	• Write design criteria for a product, articulating decisions made. • Design a personalised book sleeve make from fabric, using detailed annotations and explanation of choices	• Design a stuffed toy considering the main component shapes required and creating an appropriate template. • Consider the proportions of individual components.
Textiles Make 	• Understands how to keep safe when using materials and equipment. • Can use a range of materials (paper, card, cardboard, plastic and fabric) • Explore threading and wrapping string or wool	• Choose from available material • Develop motor/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 .	• Cut fabric neatly with scissors. • Use gluing methods to decorate a puppet • Sequence steps for construction • Use a stapler safely. • Use a template to help them cut out two identical shapes to create a puppet	• Mark out where the stitch needs to go on their design (which will open/be sewn together) • Select and cut fabrics for sewing • Secure your template together using pins before sewing • Develop a basic sewing technique-	• Create a seam by connecting two edges of fabric together • Turn product inside out after sewing so the stitching is hidden • Mark out the appliques before attaching • Accurately use a cross stitch to join fabrics together	• Make and test a paper template with accuracy and in keeping with the design criteria. • Select a stitch style to join fabric. • Work neatly by sewing small, straight stitches. • Incorporate a fastening to a design. • Assemble the sleeve using the envelope or jacket style	• 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. • Use appliqué to attach pieces of fabric decoration based on personal preference. • Apply blanket stitch so the

				starting, ending, running stitch to join fabric • Decorate a pouch using fabric glue or running stitch			space between the stitches are even and regular. • Assemble materials in temporary ways as a trial prior to finalising design choices.
Textiles Evaluate 	• Talk about existing products and share some opinions using simple language e.g I like …	• Reflect on a finished product and compare their design to others using simple language e.g. I like, I don't like …	• Reflect on a finished product, explaining likes and dislikes about own and others. • Discuss what I could make better about my product.	• Evaluate the quality of the stitching and product compared to others' work. •	• Evaluate the product based on the design criteria • Evaluate the product focussing on the quality of the cross stitching, the attachment of the appliqués and creation of seams	• Test and evaluate an end product against the original design criteria created by themselves. • Decide how many of the criteria should be met for the product to be considered successful. • Suggest modifications for improvement for own and peers products: • Articulate the advantages and disadvantages of different fastening types.	• Test and evaluate an end product and giving point for further improvements to own and others product. • Evaluate each step of the making of the product and not just the final product produced.
Textiles Substantive knowledge **Pupils will know….**	• Textiles involve materials that can be joined, cut and shaped. • Tools help us change materials.	• Designing helps plan ideas before making.	• Textiles can be joined in different ways. • Templates help shape and measure accurately.	• Stitching joins fabric securely. • Sewing requires accuracy and preparation such as threading,	• Different stitches give strength and decoration. • Appliqué adds fabric layers for decoration or repair.	• Fastenings allow materials to open and close. • Templates support	• More advanced stitches give strength and finish. • High-quality sewing requires precision.

	• Early making involves exploring textures, tools, and simple joining.	• Textiles can be joined or threaded.	Joining must be secure.	knotting and pinning.		accuracy for construction. • Textiles can be functional (e.g., protecting items).	• Evaluation should consider the full making process.
Textiles Sticky Knowledge 	• Know the name of tools and their purpose. • Know how to hold scissors and uses them to make snips in paper. • Know the names of different materials e.g. wool, fabric, string • Know materials can be put together when making	• Know a design is a way of planning our idea before we start. • Know threading is putting one material through an object	• Know that you can join fabrics using different methods e.g. stapler, gluing • Know joining techniques are different methods used to connect two pieces of materials. • Know the joining techniques should be continuous with no gaps. • Know that you need to line up the two pieces of fabric accurately to create the correct shape. • Know a template is a stencil to help draw the same shape on different materials.	• Know that a running stitch is used to join fabric together • Know to thread a needle you dampen one end and squeezing the strands together. • Know stitches should be small and close together so that they are strong (no longer than 1 cm). • Know that stitches should be near to the edge of the fabric. • Know to accurately secure the fabric with pins before sewing.	• Know that cross stitch is stronger than running stitch • Know that cross stitch overlaps threads • Know that when adding decorative features and details it is called embellishing • Know a cross-stitch is a two-stitch style of sewing that forms a cross pattern. • Know an appliqué is a type of textile art where small pieces of cloth are sewn or glued onto a larger piece to make a design. • Know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.	• Know a fastening brings two pieces of material together. • Know there are different types of fastenings e.g. zipper, Velcro, press stud, buckle, button and toggle. • Know that a template can be used to ensure accuracy in measurements and design.	• Know a blanket stitch is used to reinforce the edge of a fabric material or to securely join two pieces of fabric together. • Know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.
Textiles Fingertip Knowledge 			• Know to create a puppet you need to join around the edge using a joining method. • Know decorations	• Know that the top of the fabric needs folding to make the pouch. • Know glue can	• Know symmetrical design is made up of exactly the same parts facing each other. • Know that an asymmetrical	• Know that a book sleeve is used to protect a book. • Know that a book sleeve requires a fastening to	• Know that it is easier to finish a simpler design to a high standard. • Know that soft toys are often made by creating appendages and

			can be used on a puppet to create characters as part of a design,	be used to attach decorations to the pouch. Know that three sides are joined together to create an opening	design has parts that do not match on both sides. • Know that design criteria should act as a guide to ensure the children's design ideas are successful but not defined by individual criterion points	keep it secure. • Know what a jacket or envelope style is.	then attaching them to the main body. • Know that an effective evaluation is evaluating each step of the making of the product and not just the final product produced.
Disciplinary knowledge	• Know we can join materials in different ways.	• Know joining materials in different ways can help them stay together.	• Know people make textile products for someone and a reason. • Know choices about decoration can change how a product looks.	• Know we can use sewing to join fabric so our product works. • Know planning where openings go can help our product be easier to use.	• Know we can improve our product to make it useful for the person using it. • Know choosing shapes and decoration carefully can help the product fit its purpose.	• Know fastenings help a textile product open and close for the user. • Know testing fastenings can help us decide which works best for our product. • Know accurate templates help our product fit together properly.	• Know we can refine and explain our choices so a textile product suits the person using it. • Know testing and improving our ideas can make a stuffed toy stronger and safer. • Know careful choices about stitches and fabric pieces help the toy keep its shape when filled.
Progression summary	Children begin their textiles journey in Nursery by recognising materials, tools and basic joining actions. They learn to hold scissors, identify fabric, and join materials in simple ways. In Reception, this develops into early design thinking, understanding that ideas can be planned through designs and that simple actions like threading have a purpose. In Year 1, children use basic joining techniques such as glue and staples, and begin to understand accuracy and alignment when joining fabrics. They use templates to create consistent shapes and learn to apply decoration to match the design intention. By Year 2, children progress to hand-sewing, developing fine-motor precision and learning technical skills such as threading a needle, tying knots, and using running stitch to make strong, neat seams. They begin to understand the need for accuracy, securing fabric and planning openings in a product. In Year 3, pupils expand their skill set with stronger stitches like cross stitch and decorative techniques such as appliqué and embellishment. They learn to work with symmetry, and understand how design criteria guide successful outcomes. By Year 4, children apply their skills to functional products, using fastenings such as zips, buttons and Velcro. They deepen their understanding of templates for accurate measurement and construction, preparing them for more complex work. In Year 5, pupils refine their stitching further, applying blanket stitch for strength and durability. They shape and stuff materials to create soft toys and begin to evaluate with increasing depth—reviewing the process as well as the final product. Their work shows greater precision, independence and design reasoning, preparing them for more advanced textiles work in KS3.						

Knowledge and skills sequencing	DESIGN AND TECHNOLOGY				
	Nursery	**Reception**	**Year 2**	**Year 3**	**Year 5**
Structure Design 	• Discuss what they will be making.	• Draw simple plans, including moving parts with some labels using initial sound and phonetic attempts.	• Generate ideas based on a simple design criterion and their own experiences, exploring what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings.	• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. • Develop ideas through the analysis of existing mark making tools • Design a product that meets the requirements of the target audience is. • Use a design criterion to designers their ideas on the target audience. • Use annotations are notes on a design explaining what the design is	• Carry out research into user needs and existing products, using surveys, interviews, questionnaires, and web-based resources. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.
Structure Make 	• Keep safe when using materials and equipment. • Use a range of materials (paper, card, cardboard and plastic). • With the help of an adult makes choices about the best construction materials to use for a specific purpose. • Explores how to decorate and colour their model • Explore how to join objects together. • Explore folding paper and card.	• Begin to make stable structures using a range of materials • Improve fine motor/scissor skills with a variety of materials. • Join materials in a variety of ways (temporary and permanent) using materials such as glue and masking tape. • Join different materials together.	• Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials to build their product. • Use simple finishing techniques suitable for the product they are creating. • Spilt wood into small fractions • Apply basic measuring skills. • Manipulate flexible materials. • Manipulate wood to change its size, shape or thickness • Secure stands to a base so they stand up straight • Use a secateur to cut the flexible wood	• Plan the order of the main stages of making. • Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use whittling to create different ends of the tools • Use whittling to create the point and then carve to create different shapes	• Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Use finishing and decorative techniques suitable for the product they are designing and making. • Use a range of sharp tools, a saw and a drill safely. • Use a tape measure to measure wood to cut. • Use a fore hand grip to remove sharp bits.

			• Use a lopper to cut the rigid wood		
Structure Evaluate 	• Discuss what they have made and what they like about it.	• Describetheir junk model, and how they intend to put it together. • Give a verbal evaluation of their own and others' junk models with adult support. • Check to see if their model matches their plan. • Consider what they would do differently if they were to do it again. • Describe their favourite and least favourite part of their model • Make simple suggestions to fix their junk mode	• Evaluate the product by discussing how well it works in relation to its purpose, the user and whether it meets the original design criteria. • Evaluate own products and make suggestions on improvements • Check and evaluate that the stands and hoops are securely fitted for the game to be successful	• Investigate and evaluate a range of mark making including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. • Create an evaluation focusing on the the success of the mark making tools, with a particular focus on a creation of different shaped lines.	• Investigate and evaluate a range of existing products. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Research key events and individuals relevant to the product
Structures Substantive knowledge **Pupils will know....** 	• Structures are made from materials that can be joined together. • Structures need to be strong enough to stay up. • Some structures can fall, break or bend depending on how they are built.	• Different materials behave differently when used to build structures. • Stable structures are those that stay upright and do not fall apart.	• Structures can be strengthened, stiffened and stabilised by changing materials or how they are assembled. • Materials behave differently depending on their thickness, rigidity or flexibility. • Tools and techniques allow us to shape and manipulate materials for a purpose.	• Strong structures are created through careful shaping, joining and material control. • Tools must be used accurately and safely to shape materials to meet a design purpose. • Different users need different products, so structures must be designed for a target audience.	• Free-standing structures rely on accuracy, stability and precise measurement. • Structures are made stronger through thoughtful design choices including frame shape and secure joins. • Specialist tools help construct accurate components for a high-quality final structure.
Structures Sticky Knowledge 	• Know the name of different tools and different purposes. • Know how to hold scissors and uses them to make snips in paper. • Know how to attach two pieces of materials together with the support of an adult • Know that products need to be strong. • Know structures can fall, break or bend.	• Know there are a range to different materials that can be used to make a model and that they are all slightly different. • Know the word stable means the product won't fall apart.	• Know how to make the product stronger, stiffer and more stable. • know some wood can be flexible and some wood can be rigid. • Know that wood can be different (thickness) • Know that a ruler is used to measure the length in cm • Know to manipulate something is to handle or control something skillfully • Know that if something is rigid it is unable to bend	• Know a forehand grip is a way of holding a knife. • Know what a target audience is.	• Know what a box frame structure is. • Know a free standing structure is one which can stand on its own. • Know a tape measure the size of an object and can measure in CM.

			• Know that if something is flexible it is able to bend without breaking • Know that thicker wood is more rigid • Know that thinner wood is more flexible • know wood can be changed in different ways.		
Structures Fingertip Knowledge 	• Know that different objects can be used to build and stack, e.g. Duplo and building blocks.	• Know how to make simple suggestions to fix their junk model	• Know that the stand part of the game is the structure which needs to stand upright • Know the measurement of the flexible stick will give the size of the hoop • Know that the smaller the hoops, the more challenging the game • Know now I need to plan the length of the flexible stick to make my hoops • Know I need to bend the flexible wood to make a hoop • Know secateurs are a type of pruning clippers used with one hand • Know loppers are long handled pruning clippers used with two hands • Know that you would use secateurs to cut thinner branches • Know loppers are used to cut thicker branches	• Know how to construct strong, stiff products. • Know whittling is form of carving wood. • Know forehand grip is used to whittle wood safely and with control. • Know a knife is used to whittle wood into different shapes and thickness. • Know that you need to use whittling to create different ends of the tools. • Know that you need to whittle to create the point and then carve to create different shapes	• Know a bird box is a shelter for a bird. • Know an effective birdbox needs a hole for a bird to enter. • Know an effective birdbox needs to be secure so it can be placed in a tree. • Know a birdbox needs to be big enough and stable in order to hold a bird. • Know measurements need to be accurate to ensure the structure is secure. • Know a vice is used to hold a piece of wood when cutting. • Know that to saw you need to do long backwards and forwards strokes. • Know a drill is used to make holes in wood. • Know when drilling, hold the handle in the dominate hand and position the drill bit down. • Know it is important to keep the drill bit in the same hole when drilling to create a clean cut. • Know a screw is used to attach the wood together. • Know it is important to wear safety googles when drilling to protect eyes.

					• Know that to saw you need to do long backward and forward strokes.
Disciplinary knowledge 	Know we can build in different ways.	Know we can try ideas and change them to make junk models stronger.	Know structures are made for someone and a reason. Know we can test and change ideas to make a structure more stable.	Know we can improve a structure so it works well for the person using it. Know testing how parts join can help our structure be stronger and neater.	Know we can refine and explain our choices so a structure is strong and stable for the user. Know testing and improving ideas can help a frame structure stand safely. Know careful choices about shapes, supports and joins can help the structure carry more weight.
Progressive summery 	Children begin in Nursery by exploring simple structures and tools. They learn that objects can be built, stacked and joined, and that structures can fall, break or bend. They also develop early awareness that products must be strong and that materials behave differently. In Reception, children start to recognise that materials have different properties and can be chosen for different purposes. They gain an early understanding of stability by learning that a stable structure does not fall apart, and they begin to suggest simple ways to improve their models. By Year 2, children develop a more secure understanding of strength, stiffness and stability. They learn the vocabulary of rigid, flexible, manipulate, and begin to apply these ideas when working with wood and constructing upright structures. They understand how material thickness affects strength and how tools such as secateurs or loppers are chosen for different purposes. In Year 3, children progress into using tools with increasing precision (e.g., whittling knives with a forehand grip). They begin to design with a target audience in mind and understand how different construction methods create strong and stiff structures suitable for purpose. By Year 5, children work with more complex free-standing and box-frame structures. They measure accurately using tools such as tape measures, use vices and saws safely, and understand how accurate joins, sizing and stability affect the success of a structure such as a bird box. Overall, the progression moves pupils from exploring materials and basic stability in EYFS, to understanding and applying structural principles (strength, stiffness, stability) in KS1, to confidently designing, measuring and constructing strong and purposeful structures using tools and techniques in KS2.				

Knowledge and skills sequencing	**DESIGN AND TECHNOLOGY**						
	Nursery	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 5**	**Year 6**
Cooking and nutrition Design 	• Can articulate what they intend to make.	• Design a soup recipe as a class. • Design soup packaging, drawing ingredients and using phonetically plausible attempts to label vegetables.	• Design and label what fruit will be in my smoothie.	• Design a healthy wrap based on a food combination which work well together using knowledge of balanced diet.	• Design 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	• Write a recipe, explaining the key steps, method and ingredients. • Include facts and drawings from research undertaken.

						• method for a recipe to incorporate the relevant changes to ingredients. • Design a detailed and appealing packaging to reflect a recipe.	
Cooking and nutrition Make 	• Understands how to keep safe when using utensils. • Can mix ingredients together	• Chop plasticine safely with adaptive safety knives • Chop vegetables with support with adaptive safety knives.	• Chop fruit and vegetables safely to make a smoothie using a table knife • Find if a food is a fruit or a vegetable • Know a blender mixes ingredients together into a liquid. • Know basic food handling, hygienic practices and personal hygiene, including how to control risks • Hold a table knife appropriately to cut soft things, eat with and spread. • Use a manual juicer to squeeze fruit to get juice. • Use a chopping board to protect the table when	• Slice food safely using the bridge or claw grip • Construct a wrap that meets a design brief • Prepare food safely using the correct tools. • Safely use a variety of tools and equipment to peel and cut food • Wash food and hands as part of food preparation. • Use claw grip technique that uses a curled hand to cut food into slices or dice. • Use the claw grip as a cutting technique that uses a curled hand to cut food into slices or dice. • Ue a butter knife to spread	• Prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination • Follow the instructions within a recipe • Use a sharp knife to cut fruits and vegetables • Line a tart case to create the correct shape • Ensure the case does not have any holes or tears otherwise the filling will leak	• Use equipment safely, including knives, hot pans and hobs • Use vegetable knives to cut higher resistance foods. • Use a box grater to grate foods into small pieces. • Follow a step by step method carefully to make a recipe. • Accurate measuring and weighing skills, understanding the properties and quantities of ingredients will affect the final products. • Use table and teaspoons to accurately measure out ingredients. • Use a garlic presser to break down a garlic clove into smaller pieces.	• Follow a recipe, including using the correct quantities of each ingredient • Adapt a recipe based on research • Work to a given timescale • Work safely and hygienically with independence • Understand how to prepare vegetables correctly ready for cooking • Use the bridge grip to cut high resistant foods into half before the claw grip to the foods into smaller pieces. • Achieve the right consistency

			cutting the food. • Assist an adult to use a blender to cut up food into a liquid				when mixing by folding with a spatula. • Zest citrus fruit using a back-and-forth motion. • Use the markings on a measuring jug indicate the measurements. • Press and crush an ingredients extracts more flavor or juice.
Cooking and nutrition Evaluate 	• Can articulate if they like the taste of what they have made answering yes or no questions.	• Taste the soup and giving simple opinions e.g. I like… I don't like … .	• Taste and evaluate different food combinations giving simple opinions using because. • Describe the appearance, smell and taste.	• Describe the taste, texture and smell of fruit and vegetables • Taste test food combinations and final products • Describe the information that should be included on a label • Evaluate which grip was most effective when slicing and dicing foods. • Evaluate my wrap , ensuring it contains foods from different food	• Establish and use a design criteria to help test and review dishes • Suggest points for improvement when making a seasonal tart • When evaluating the tart, there is a focus on does the food look good and do you want to eat it. • Evaluate if the tart is successful by checking it has crisp pastry and lots of filling inside the tart and the tart has no breaks or leaks	• Identify and evaluate the nutritional differences between different products and recipes	• Evaluate a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products. • Suggest and write up points of improvements in productions. • Evaluate health and safety in production to minimise cross contamination .

				• groups to be a balanced meal • Evaluate how the wrap is made, ensuring the vegetables in my wrap should be cut to a size that fits in a wrap			• To use prior knowledge to assess their meals. • Evaluate what flavours work well together and which flavours do not.
Cooking and nutrition Substantive knowledge **Pupils will know....** 	Cooking uses ingredients that can be combined and changed. Food has different textures and properties. Ingredients can be mixed to make something new.	Vegetables come from plants and can be prepared in different ways. Cutting is a way to change the size and shape of food. Healthy eating includes eating vegetables.	Tools have specific functions in preparing food. Fruits and vegetables come from different parts of plants. Some foods are naturally sweet and affect taste.	Healthy eating involves choosing a balance of food groups. Foods contain nutrients such as sugar, which vary between products. Food labels help people make healthy choices.	Recipes give instructions to prepare food safely. Food safety includes avoiding contamination. Climate and season affect food growth. Some foods are imported because they cannot grow in the UK.	Recipes can be adapted to make them healthier. Food hygiene prevents cross contamination. Different foods have different ethical considerations.	Cooking requires accurate preparation techniques to ensure food is safe and enjoyable to eat. Flavour combinations influence the overall success of a dish. Different tools and techniques (such as zesting, crushing, folding and measuring) change the texture, flavour and consistency of food. Understanding ingredients and how they behave helps in creating and improving recipes. Knowledge of hygiene and safe food handling underpins all cooking processes.
Cooking and nutrition Sticky Knowledge	• Know about dry and wet ingredients. • Know that ingredients can be stirred, mixed and poured. • Know what	• Know how to chop a large vegetable using a safety knife. • Know that vegetables are grown. • Recognise and	• Know that a table knife is used to cut soft things, eat with and spread. • Know that manual juicers are	• Know what makes a balanced diet • Know that there are five food groups, made up of: • fruit and	• Know that cooking instructions are known as a 'recipe'. • Know food contamination is	• Know a garlic presser is used to break down garlic clove into small pieces. • Know a box grater is used to	• Know it's important to wash fruit and vegetables before eating to remove any

	textures are and can use them to describe different foods	name some common vegetables e.g. carrots, potatoes. • Know that different vegetables taste different. • Know that eating vegetables is good for us.	used to squeeze fruit to get juice. • now that chopping boards are used to protect the table when cutting the food. • Know you should always wash your hands before. • Know a blender cuts up food so much to make it into a liquid • Know the difference between fruits and vegetables • Know vegetables grow either above or below the ground. • Know fruits grow on trees or vines. • Know fruits have seeds and vegetables do not. • Know that a vegetable is any edible part of a plant • Know that not all fruits are sweet	vegetables • starchy carbohydrates • proteins • dairy • oils and spreads • Know the amount of sugars in foods can be found on the nutritional value label on the packaging. • Know a balanced diet is eating the correct amount of each food group • Know that foods fit into one of the food groups	when foods are spoiled because they have been in contact with bacteria and no longer edible. • Know to use a sharp knife to cut fruits and vegetables • Know that climate affects food growth. • Know that vegetables and fruit grow in certain seasons. • Know that not all fruits and vegetables can be grown in the UK.	grate foods into smaller pieces. • Know that to adapt a recipe to make it healthier means to change it. • Know where food comes from, learning that beef is from cattle and how beef is reared and processed.	dirt or insecticides • Know to use the bridge grip to cut high resistant foods into half before the claw grip to the foods into smaller pieces. • To know that certain flavours and ingredients work well together to make a complete dish.

Cooking and nutrition Fingertip Knowledge 		• Know that soup is made up of ingredients (usually vegetables and liquid) blended together.	• Know fruit is a good choice to make a smoothie because most are a sweeter taste • Know that a drink is more pleasant if it is sweet • Know that to make a smoothie sweeter you can add a sweeter tasting fruit	• Know the amount of sugar in food changes between brands • Know there are large amounts of sugar hiding in certain foods such as ketchup, pasta and peanut butter • Know when filling in a wrap it needs to be prepared and cut before putting into the wrap.	• Know that imported food is food that has been brought into the country. • Know an export is food sent to another country to sell. • Know that a nutritional rainbow effect is when you eat a range of different coloured fruit and veg with different health benefits. • Know that seasonal fruits and veg are those that are grown in a given season and taste best. • Know that food is appetizing is food that looks good and you want to eat it. • Know that a successful tart should have crisp pastry and lots of filling inside the tart • Know a tart should have no breaks or leaks	• Know and compare differences. between two adapted recipes using a nutritional calculator and then identifying the healthier option. • Know the ethical issues around the way in which cattle should be farmed.	• To know how to improve dishes based on combination of flavours. • Know how to zest citrus fruit using a back-and-forth motion • Know the markings on a measuring jug indicate the measurements. • Know how to crush a garlic by placing it in the press and squeezing the handles together. • Know that pressing and crushing an ingredients extracts more flavor or juice. • Know how to achieve the right consistency when mixing by folding with a spatula

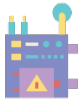
Disciplinary knowledge 	Know we can try foods and talk about what we like.	Know we can choose food to make soup for someone. Know we can change our ideas to make the soup taste nicer for them.	Know people make food for someone and a reason. Know we can test and change our ideas to make food taste or look better. Know choices about ingredients can change how our food tastes.	Know we can plan a dish for a person and a purpose. Know choices about preparation affect our final dish.	Know we can improve a dish to make it appealing for the person eating it. Know testing flavours and textures can help us improve a recipe. Know choices about equipment and techniques affect how well the dish turns out.	Know we can adapt recipes so they suit different people. Know we can test and refine choices to improve flavour and presentation. Know careful choices about cooking methods affect how food turns out.	Know we can justify our food decisions so the dish suits the user and purpose. Know testing and adapting a recipe can improve texture, taste, and appearance.
Progressive summary 	Children begin by exploring simple food concepts in Nursery, such as recognising textures and understanding that ingredients can be mixed, poured and combined. In Reception, they learn the basics of preparing vegetables safely and begin to identify where food comes from. In Year 1, pupils develop early food-preparation skills and learn key differences between fruits and vegetables, as well as the safe use of simple equipment like table knives, chopping boards and juicers. By Year 2, they build a secure understanding of nutrition, including the five food groups and what makes a balanced diet. They also begin to interpret sugar content using food labels. Year 3 deepens their knowledge of food origins, seasonality and how climate affects growth. Children learn what a recipe is, how to prepare ingredients with greater accuracy and how to prevent food contamination. By Year 5, pupils apply more advanced preparation techniques using equipment such as garlic presses and graters, and they explore food ethics, cross-contamination and how to adapt recipes to be healthier. In Year 6, pupils refine their cutting techniques (bridge and claw grip), learn how flavours complement each other, and develop precision in preparing ingredients such as zesting, crushing and measuring. They begin evaluating food based on taste, texture, flavour pairings and technical accuracy.						

Knowledge and skills sequencing	**DESIGN AND TECHNOLOGY**	
	Year 4	**Year 6**
Electrical systems	• Write design criteria for a product, articulating decisions made.	• Design a steady hand game - identifying and naming the components required. Drawing a

Design 	• Design a torch, using detailed annotations and explanation of choices. • Draw a basic diagrams of the circuit, using electrical symbols.	design from three different perspectives. • Generate ideas through sketching and discussion. • Model ideas through prototypes. • Design the product based on the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'
Electrical systems Make 	• Make a torch with a working electrical circuit and switch. • Use appropriate equipment to cut and attach materials. • Assemble a torch according to the design and success criteria. • Create a product that makes it portable for the target audience to be able to carry it. • Assembly the circuit securely so it stays connected. • Connect the bulb and switches accurately to the circuit.	• Construct a stable base for a game. • Accurately cut, fold and assemble a net. • Decorate the base of the game to a high quality finish. • Make and test a circuit. • Incorporate a circuit into a base. • Develop a structure with finishing techniques; use a range of tools to measure and cut accurately. • Create a net for a 2D pattern or shape that can be folded to create a 3D shape. • Create tabs to glue the shape together. • Add decoration before building the net to ensure it is neat • Use pliers are a tool used to grip and twist wires.
Electrical systems Evaluate 	• Evaluate electrical products, testing and evaluating the success of a final product. • Evaluate the success of the circuit, testing the switch and bulb work accurately to ensure ethe circuit is complete and matches the original diagrams produced.	• Test own and others finished games, identifying what went well and making suggestions for improvement. • Gather images and information about existing children's toys. • Analyse a selection of existing children's toys. • Evaluate if the product is 'fit for purpose', ensuring it works how it should and is easy to use.
Electrical systems Substantive knowledge **Pupils will know....** 	• Electrical systems use circuits to power components. • Electricity flows only when a circuit is complete. • Materials behave differently depending on whether they conduct or insulate electricity. • Switches control whether a circuit is open or closed.	• Electrical systems combine multiple components to perform controlled functions. • Different components produce different outputs, such as light, sound or movement. • Series circuits allow electricity to flow through one pathway. • Products are designed with both form (appearance) and function (how it works) in mind.
Electrical systems Sticky Knowledge 	• Know that electricity is a form of energy made from charged particles. • Know that electrical conductors are materials which electricity can pass through. • Know that electrical insulators are materials which electricity cannot pass through. • Know that a battery contains stored electricity that can be used to power products. • Know that an electrical circuit must be complete for electricity to flow. • Know that a switch can be used to complete and break an electrical circuit.	• Know an electrical system is a group of components that work together to carry electricity around a circuit. • Know a series circuit has one path for the electrical current to flow • Know a buzzer is a circuit component that makes noise when electricity passes through it. • Know a LED is a circuit component that produces light when electricity passes through it. • Know the function of a is how the product works • Know the form of a product is the shape and appearance.

Electrical systems Fingetip Knowledge 	• Know that the main body of a torch should be made from a sturdy material as it needs to hold a circuit inside. • Know that the purpose of a torch is to create directional light • Know that a torch contains a circuit inside to work. • Know some features of a torch including bulb, batteries, housing, reflector, switch. • Know that a working torch should be portable. • Know the circuit should be encased by the body of the switch	• Know that 'form over purpose' means that a product looks good but does not work very well. • Know that fit purposes means a product works exactly how it should, with no difficulties. • Know product analysis is when you critique strengths and weaknesses of a product. • Know that to increase the difficulty of the game you can increase the complexity of the wire shape and how close together each shape is. • Know that when the rod touches the wire it allows electricity to flow around the circuit, powering the buzzer. • Know pliers are a tool used to grip and twist wires
Electrical systems Disciplinary knowledge 	• Know we can choose electrical parts to make a product work for someone. • Know we can test and change our ideas to make an electrical product work better. • Know choices about switches can make a product easier and safer to use.	• Know we can refine and explain our electrical design choices so the product suits the user. • Know we can test and adjust our ideas to make movement, sound or light work smoothly and safely.
Progressive summary 	Children begin in Year 4 by understanding the foundations of electricity: simple circuits, conductors, insulators, switches and the idea that electricity only flows when a circuit is complete. They apply this to a functional product such as a torch. • By Year 6, children apply these foundations to more complex electrical systems, combining components such as LEDs, buzzers and switches within a series circuit. They evaluate products in terms of form and function and understand how electrical components interact to produce controlled outputs. Their learning progresses from basic circuit knowledge to designing purposeful electrical systems with increasing accuracy and evaluative thinking.	

Knowledge and skills sequencing	**DESIGN AND TECHNOLOGY**	
	Year 5 (Crumble kits)	**Year 6 (Micro:bit)**
Digital systems Design 	• Create an annotated sketch to show how the Crumble kit will be connected to its components. • Generate, develop, model and communicate realistic ideas through discussions and appropriate, annotated sketches.	• Writing design criteria for a programmed motivational step counter (Micro:bit). • Follow a list of design requirements
Digital systems Make 	• Order the main stages of making. • Connect simple electrical components and a battery in a series circuit to achieve a functional outcome. • Program a standalone control box, microcontroller or interface box to enhance the way the product works.	• Program a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press.

Digital systems Evaluate 	• Evaluate the ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	• 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. • Test my program for bugs (errors in the code). • Find and fix the bugs (debug) in my code.
Digital systems Substantive knowledge **Pupils will know....** 	• Digital systems control electrical components using programmed instructions. • Microcontrollers can run sequences, respond to inputs, and control multiple output devices. • Programs use loops, conditions and actions to create automated behaviour. • Testing and debugging help ensure systems work as intended.	• Digital systems use complex selection, variables and inputs to control programmable devices. • Programs make decisions by evaluating conditions and acting on them. • Variables allow a system to store and use changing values. • Debugging and refinement strengthen accuracy and reliability in system design.
Digital systems Sticky Knowledge 	• Know how to build a simple circuit to connect a microcontroller to a computer. • Know how to program a microcontroller to light an LED. • Know how to connect more than one output device to a microcontroller. • Know how to design sequences for given output device. • Know how to program a microcontroller to respond to an input. • Know how to identify a condition and an action in my project. • Know and explain why I used an infinite loop .	• Know how to identify examples of conditions in the real world. • Know how to determine the flow of a program using selection. • Know how to use an operand (e.g. e.g <>=) in an if, then statement. • Know how to modify a program to achieve a different outcome. • Know to use a variable in an if, then, else statement to select the flow of a program. • Know that if you read a variable, the value remains. • Know to use a range of approaches to find and fix bugs. .
Digital systems Fingertip Knowledge 	• Know how to use selection (an 'if... then...' statement) to direct the flow of a program. • Know how to identify a condition to start an action (real world). • Know how to write an algorithm to control lights and a motor. • Know how to test and debug my project. • Know which output devices I control with a count-controlled loop • Know that a condition is something that can be either true or false (eg whether a value is more than 10, or whether a button has been pressed) • Know to experiment with a 'do until' loop • Know that a condition being met can start an action • Know and describe what my project will do (the task) • Know to use selection to produce an intended outcome • Know how to create a detailed drawing of my project	• Know how to apply my knowledge of programming to a new environment. • Know how to test my program on an emulator. • Know how to transfer my program to a controllable device. • Know how to experiment with different physical inputs. • Know how to design the algorithm for my project. • Know how to design the program flow for my project. • Know how to create a program based on my design. • Know how to test my program against my design. • Know that if you read a variable, the value remains. • Know the importance of the order of conditions in else, if statements
Digital systems Disciplinary knowledge 	• Know we can choose digital parts to make a product work for someone. • Know we can test and change our ideas to make our Crumble program work better. • Know choices about inputs and outputs can help the product be easier to use.	• Know we can refine and explain our digital design choices so the product suits the user. • Know we can test and adjust our program to make movement, sound or light work smoothly and safely. • Know careful choices about how we control a product can help it work in the way we planned.

Progressive summary 	Children begin in Year 5 by building simple circuits with microcontrollers and writing basic programs using sequences, inputs, outputs and infinite loops. They learn foundational programming structures including conditions and simple selection. In Year 6, this deepens into more advanced control using operands, variables and complex selection. Children develop stronger debugging habits and learn to design full program flows, improving precision, logic and computational thinking as they progress.

Curriculum End of Year Points

Design and Technology	
Curriculum End Points The KKPs are the input to the curriculum. The curriculum end points are the output. Curriculum end points capture the knowledge, skills and understanding that children should have at the end of each year. They build progressively over time so that children leave Year 6 well-prepared for the next stage of education as competent and capable geographers. **For subject leaders,** they provide a clear overview of the end of year expectations for each year group, which will support the planning and assessment of the curriculum. **For teachers**, they provide further clarity around what children should be able to do at the end of each year, using the knowledge they have gained from being taught the KKPDs. They support teachers to plan activities that help to develop children as effective geographers. They should be used to check what children know and how well they can apply this knowledge across the curriculum. **For children**, they ensure that they receive an equitable curriculum which gives them the substantive, procedural and disciplinary knowledge needed to be successful in their future studies.	
Year group	**By the end of the year, children should be able to:**
Nursery	• Recall the knowledge specified within the KKPDs for Nursery • Recognise that people have different feelings and experiences • Retell simple ideas from stories linked to kindness or helping • Identify people, places and things that feel special • Respond to examples of celebration or belonging • Talk about what is important to them and to others • Ask simple questions about the world around them
Reception	• Recall the knowledge specified within the KKPDs for Reception • Identify special places, people and celebrations (e.g., Christmas, Easter) • Retell simple parts of religious stories • Recognise that people have different beliefs and ways of celebrating • Use simple vocabulary to talk about belonging or special times • Compare how they and others celebrate events • Respond to questions about what makes something special or meaningful

Year 1	• Recall the knowledge specified within the KKPDs for Year 1 • Retell key stories from Christianity and Judaism • Identify how these stories shape beliefs about God and behaviour • Recognise simple ways people show they belong (e.g., symbols, actions) • Compare how different communities care for people or the world • Use examples to show how beliefs influence actions • Ask questions about fairness, kindness and responsibility
Year 2	• Recall the knowledge specified within the KKPDs for Year 2 • Outline key practices in Christian, Jewish and Muslim worship • Connect beliefs about God with prayer, celebration or guidance • Compare how special places are used across different faiths • Suggest reasons why people value certain objects, stories or places • Respond to ideas about forgiveness, love or respect • Ask and answer questions about what matters to people
Year 3	• Recall the knowledge specified within the KKPDs for Year 3 • Summarise key beliefs about God across the religions studied • Give examples of how festivals, rituals or worship express belief • Make links between religious texts and ideas about behaviour or morality • Compare how communities celebrate important events or show commitment • Identify ways people show trust, forgiveness or responsibility • Ask thoughtful questions about right and wrong
Year 4	• Recall the knowledge specified within the KKPDs for Year 4 • Outline how different religions mark life events such as birth or commitment • Summarise key beliefs and practices from Holy Week and Hindu Dharma • Compare ways different faiths show devotion, duty or respect

	• Give examples of how beliefs influence choices and identity • Suggest how commitments shape behaviour and belonging • Ask questions about purpose, choice and consequences
Year 5	• Recall the knowledge specified within the KKPDs for Year 5 • Compare different Christian views about Creation • Use examples to show how beliefs influence environmental responsibility • Outline key Jewish beliefs and practices linked to the Torah or food laws • Explore how different worldviews guide moral decisions • Make links between belief, value and action in real situations • Give reasons for their ideas about living well and treating others
Year 6	• Recall the knowledge specified within the KKPDs for Year 6 • Compare a range of viewpoints about God (theist, atheist, agnostic) • Interpret how Christian beliefs about Jesus shape ideas of salvation and hope • Use evidence from texts to suggest how belief guides choices • Explore how worldviews respond to suffering, justice or purpose • Make connections between belief, identity and lived experience • Form reasoned responses to big questions using examples and evidence
Progression summary	**Nursery** In Nursery, children begin their DT journey by talking about what they want to make and how they will make it, laying the earliest foundations for design thinking. They explore a variety of materials and begin naming them, forming the basis for later material selection. Their early use of simple tools, such as scissors for snipping, introduces the idea that tools change materials. Children explore movement through rolling, sliding and pushing objects, giving them their first experiences of mechanisms. They experiment with simple joining methods such as threading, wrapping and sticking, providing the earliest building blocks of textiles and construction work. Their stacking and building of blocks helps them notice that some structures fall or bend, forming the beginning of their understanding of stability. In cooking, children explore mixing ingredients, noticing changes in texture and taste, and begin expressing simple evaluative opinions — the foundation of all later evaluation work. **Reception** Reception builds directly on all the exploratory foundations set in Nursery. Children's talk about what they want to make develops into drawing simple plans, linking closely back to the early intention-setting seen in Nursery. Experiences of movement from Nursery develop into making models with moving parts and describing which parts move, building on their earlier observations of rolling and sliding. Joining methods such as threading and sticking from Nursery grow into weaving, taping, folding and simple stitching, deepening their understanding of how materials connect. Construction work involving building and stacking now becomes purposeful as children attempt to create more stable structures, building on the stability awareness developed in Nursery. Their tool use becomes more controlled and confident, drawing on the safe handling introduced previously. In cooking, they develop the mixing exploration from Nursery into chopping and designing simple soups, and they extend their early reflections on taste and texture into clearer evaluative comments.

	Year 1 Year 1 explicitly builds on both Nursery and Reception learning. Work with wheels, axles and axle holders draws directly on the rolling and sliding exploration in Nursery and the moving-part models in Reception. Labelled plans grow from the simple, sometimes symbolic plans children drew previously in Reception. Joining materials with glue, tape and staples builds on the joining experiences in Nursery and the improved joining control developed in Reception. Textile work — using templates, cutting shapes and joining fabric — builds explicitly on the threading, weaving and early stitching introduced in Reception. Making smoothies extends the chopping and tasting experiences from Reception, and the sensory vocabulary used relates back to the early tasting language children experimented with in Nursery. Evaluation skills also build on the reflective discussions established through EYFS. **Year 2** Year 2 learning continues to develop ideas from earlier years. Designing and labelling a fabric pouch grows from the plan-making skills first introduced in Reception and used more formally in Year 1. Running stitch builds directly on the simple stitching explored in Reception and refined through template-based textile work in Year 1. Using pins to hold fabric links back to improving accuracy across Reception and Year 1. Creating stable wooden structures connects to the construction and stability exploration in Nursery and Reception and the controlled joining work in Year 1. Measuring and cutting wood continues the progression from early tool use in Nursery and Reception and the accuracy developed in Year 1. Making a healthy wrap builds on food preparation from Reception and the fruit work in Year 1 while drawing on the safety routines established in both years. Evaluations deepen from the simpler comments in earlier years to more purposeful reflections on function and user. **Year 3** Year 3 builds clearly and directly on prior learning in several strands. Textile work with cross stitch grows from the running stitch in Year 2 and the early threading and stitching of Reception and Year 1. Planning seams and using design criteria builds on the planning skills first developed in Reception and refined in Years 1 and 2. Designing and shaping mark-making tools builds on children's prior experiences of material behaviour in Nursery and Reception and the wood manipulation and construction work in Year 2. Understanding how structures are strengthened and stabilised connects back to early block-building in Nursery, junk modelling in Reception and strengthening work in Year 2. The seasonal savoury tart connects back to chopping in Reception, smoothies in Year 1 and healthy wraps in Year 2. Evaluative skills extend the tasting language and reasoning learners have been building since Nursery. **Year 4** Year 4 builds explicitly on earlier learning. The work with aerodynamic vehicles links directly to the early movement exploration in Nursery (rolling/sliding), the identification of moving parts in Reception and the wheel–axle understanding developed in Year 1. The accuracy required for measuring and constructing vehicles builds on earlier accuracy practised in Reception, Year 1 and Year 2. Sewing a book sleeve with fastenings builds on the stitching journey from Reception through Year 3, drawing on the increasing stitch strength and precision developed each year. Using templates links back to template work introduced in Year 1 and refined in Year 3. The use of circuits in a torch connects to the tool-handling and assembling skills developed across EYFS and KS1; although electricity is new here, the logic of constructing something purposeful builds on earlier designing and joining. Evaluation continues the reflective habits established since Nursery. **Year 5** Year 5 develops ideas rooted deeply in earlier work. Sewing a stuffed toy with blanket stitch builds on the stitching progression from Reception (simple stitching) to Year 1 (basic joining), Year 2 (running stitch), and Year 3 (cross stitch). Using accurate templates builds on template learning in Year 1 and the refinement of accuracy in Year 4. Designing and constructing free-standing frames grows from stability exploration in Nursery, structured building in Reception, the construction accuracy in Year 1, the strengthening techniques in Year 2 and the precision required in Year 4 vehicle work. Food work, including adapting recipes, draws on early ingredient mixing from Nursery, soup making from Reception, smoothie and wrap preparation in KS1, and tart creation in Year 3. Programming a Crumble microcontroller builds directly on the early understanding of tools from Nursery, controlled processes from Reception, problem-solving from KS1 and the electrical circuits introduced in Year 4. It also lays the important foundation referenced later in Year 6 DT (see below). **Year 6** Year 6 draws together learning from every preceding year. Designing and building a steady-hand game builds on accurate net construction developed in Year 4, the stable wooden structures from Year 2 and the electrical circuits assembled in Year 4. Programming a Micro:bit links explicitly back to the Crumble microcontroller work learned in Year 5 Computing, where pupils first connected components, used loops and conditions and understood that digital systems respond to programmed instructions. The Micro:bit builds directly on those same core ideas of sequencing, debugging and controlling physical outputs that children encountered through the Crumble. Constructing an automata toy links back to the exploration of movement in Nursery, the moving-part models in Reception, the wheel and axle knowledge in Year 1 and the mechanism understanding from the aerodynamic vehicle work in Year 4. Food preparation, including researching and adapting recipes, strengthens the progression that began with mixing in Nursery, developed through chopping and combining in Reception, Year 1 and Year 2, and expanded further through Years 3 and 5. Evaluation at this stage remains grounded in the reflective practices introduced in Nursery and built on every year thereafter.