



Ashton Hayes Primary School – Design and Technology Curriculum Overview

Vision for Design and Technology

At Ashton Hayes Primary School, we believe that Design and Technology prepares children to participate successfully in an increasingly technological world. As a small rural school in Cheshire, many of our pupils have limited opportunities to explore the wide range of technologies, products, cultures and industries that exist beyond their immediate community. Our Design and Technology curriculum aims to both celebrate practical creativity and broaden pupils' understanding of how design and technology shape everyday life locally, nationally and globally.

Through designing, making, evaluating and refining products, pupils develop creativity, resilience and problem-solving skills. They learn how products are designed for specific users and purposes and begin to understand how design decisions affect function, appearance and usability. Pupils explore a range of disciplines including textiles, mechanisms, structures, food and nutrition, and electrical systems.

We want pupils to see themselves as designers, makers and innovators who can identify problems, generate ideas and create purposeful products. Through practical experiences, pupils learn to take risks, evaluate outcomes and improve their work through testing and refinement. As a rural village school, we recognise the importance of providing pupils with meaningful, hands-on experiences that develop confidence and independence. Our curriculum therefore provides opportunities for pupils to work with a wide range of tools, materials, ingredients and components while developing the technical knowledge and vocabulary needed to understand how products are designed and made. We place strong value on practical learning that is relevant to pupils' lives and experiences, enabling pupils to design and make products for familiar users and purposes while also exploring how technology and design influence the wider world.

Our Design and Technology curriculum is carefully sequenced so that knowledge and skills build progressively across year groups. Pupils revisit key strands including textiles, mechanisms, structures, food and nutrition, and electrical systems, developing increasing control, accuracy, independence and technical understanding over time. In Key Stage 1, pupils begin by exploring simple products and developing basic making skills such as cutting, joining, shaping and assembling. Across Key Stage 2, pupils build on this foundation by developing greater precision, independence and understanding of how products function. Through this progressive approach, pupils develop curiosity, resilience and pride in practical achievement while gaining the knowledge and skills required by the National Curriculum.

We aim for all pupils to:

- develop creative, technical and practical expertise needed to perform everyday tasks confidently and 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
- evaluate and test ideas and products against design criteria and design specifications
- understand and apply the principles of nutrition and learn how to cook
- become reflective learners who can adapt, refine and improve their work through testing and evaluation

Implementation

Design and Technology at Ashton Hayes Primary School is taught through a carefully planned sequence of projects that ensure progression of knowledge, skills and vocabulary across the school.



The curriculum is organised around key strands including textiles, mechanisms, structures, food and nutrition, and electrical systems. These strands are revisited across the two-year rolling programme so that pupils develop increasingly secure understanding and technical competence over time.

Lessons follow the design process of research, design, make and evaluate. Pupils investigate existing products, identify users and purposes, generate ideas, develop design criteria and create products using a range of materials, tools and techniques. Throughout the making process, pupils are encouraged to test, refine and improve their work.

Technical knowledge and vocabulary are explicitly taught within each project. Pupils learn how mechanisms create movement, how structures achieve strength and stability, how textiles are joined and constructed, and how ingredients can be prepared and combined safely.

Food and nutrition are taught progressively across the school. Pupils begin with simple food preparation and hygiene before developing skills such as measuring, cutting, combining and cooking ingredients independently. Older pupils learn how recipes can be adapted to improve nutrition, taste, texture and presentation.

The curriculum makes strong use of practical, hands-on learning. Pupils are given regular opportunities to explore materials, test ideas and solve problems through experimentation and evaluation. Teachers model technical skills clearly and adapt learning to ensure that all pupils can access the curriculum successfully.

The curriculum is carefully sequenced to ensure clear progression:

- in textiles, pupils progress from simple joining techniques to constructing multi-component products with accuracy and control
- in mechanisms, pupils progress from simple sliders and levers to more complex systems involving pneumatics, CAMs, gears and pulleys
- in structures, pupils progress from simple freestanding structures to reinforced frame structures and load-bearing bridge designs
- in food and nutrition, pupils progress from basic preparation and combining techniques to cooking independently and adapting recipes
- in electrical systems, pupils progress from simple circuits to creating more complex functional systems with defined inputs and outputs

Enrichment opportunities such as themed projects, cooking experiences and practical challenges further deepen pupils' understanding and engagement.

Impact

Through the Design and Technology curriculum at Ashton Hayes Primary School, pupils develop creativity, resilience and confidence in practical problem-solving. They gain a secure understanding of how products are designed, made and improved to meet the needs of specific users and purposes.

Pupils leave the school with an increasingly secure understanding of key technical concepts within textiles, mechanisms, structures, food and nutrition, and electrical systems. They develop the ability to apply practical skills with growing independence, accuracy and control.

Pupils learn to evaluate products critically, justify design decisions and refine their work through testing and adaptation. They understand that design is an iterative process and that products can be improved through reflection and modification.



By engaging with a wide range of practical experiences, pupils develop confidence in using tools, equipment, materials and ingredients safely and effectively. They also develop the resilience needed to solve problems, overcome challenges and learn from mistakes.

Food and nutrition teaching helps pupils develop an understanding of healthy eating, food preparation and cooking skills that they can apply in everyday life.

Ultimately, pupils leave Ashton Hayes Primary School as creative, reflective and capable learners who are prepared for the next stage of their education and able to participate confidently in an increasingly technological world.

EYFS (Kestrel class)

Topic – all year	Designing, Making and Improving
Core knowledge	Children will learn that: • Products are designed for a purpose and for someone to use. • Different materials have different properties and are suitable for different jobs. • We can join, shape and build using a range of materials. • Some materials are flexible, some are rigid and some are soft. • Tools help us make things safely and accurately. • We can plan what we want to make before we begin. • Sometimes our ideas do not work the first time and need changing. • Testing helps us find out whether something works. • We can improve our designs after trying them out. • Designers think creatively to solve problems.
Skills	Children will: • explore and investigate a wide range of materials and construction resources. • talk about what they want to make and who it is for. • choose appropriate materials for a simple purpose. • join, build, fold, roll, stack, cut and attach materials. • use simple tools safely with increasing control. • create simple models, structures and products. • test whether a product works as intended. • explain what they like about their product. • identify something they could improve. • develop resilience by adapting and improving their work.
Key vocabulary	design; make; build; create; plan; test; improve; evaluate; product; user; purpose; material; wood; card; paper; fabric; plastic; join; attach; cut; fold; bend; shape; strong; weak; stable; balance; structure; tool; safe; problem; solution
Adaptations	• Junk modelling station available throughout the year with open-ended resources. • Large construction blocks, loose parts and outdoor building opportunities. • Opportunities to design and make homes, bridges and vehicles linked to class themes. • Explore fabrics, fastenings and simple sewing cards. • Build with natural materials in Forest School. • Use playdough and clay to investigate shaping and joining. • Design and make products for familiar users (e.g. a teddy, a story character or a family member). • Encourage children to draw and talk through a simple design before making. • Use prompts such as: ○ <i>What are you making?</i> ○ <i>Who is it for?</i> ○ <i>What materials will you choose?</i> ○ <i>How could you make it stronger?</i>



- | | |
|--|---|
| | <ul style="list-style-type: none">○ <i>How could you improve it?</i>● Adults model the full design cycle by thinking aloud:<ul style="list-style-type: none">○ Explore → Plan → Make → Test → Improve. |
|--|---|

Topic/Term	Autumn: Textiles – Joining and embellishing techniques Puppets	Spring: Mechanisms: Wheels and axles Vehicles	Summer: Structures – freestanding structures Junk Modelling
Core knowledge	Textile products are designed for a specific user and purpose. Fabric is a flexible material that can be cut, shaped and joined. A running stitch is used to join two pieces of fabric. Evenly spaced stitches improve strength and appearance. Different materials have different properties which affect how they can be used. Decoration can change the appearance and suitability of a product.	Mechanisms are used to create movement for a specific purpose. Wheels and axles work together to enable movement. An axle rotates to turn the wheels. The position and alignment of wheels affects movement and stability. The design of a mechanism affects how smoothly a product moves.	Structures are designed for a specific user and purpose. Materials have different properties (e.g. rigid, flexible, lightweight) which affect how they can be used. Freestanding structures must be stable and balanced to stand independently. The shape and base of a structure affect its stability. Different joining techniques affect the strength of a structure.
Skills	Thread a large-eyed needle with support. Use a running stitch to join pre-cut and pre-punched fabric with developing control. Pull thread through fabric carefully to maintain stitch quality. Use a template to position and align fabric pieces. Attach simple decorative elements using glue or stitching. Select and use tools safely with guidance.	Attach wheels securely to an axle. Ensure the axle can rotate freely. Assemble components so that movement is smooth. Test movement and identify problems. Make simple adjustments to improve how the vehicle moves.	Select appropriate materials for a purpose. Cut and join materials using simple techniques. Assemble components to create a freestanding structure. Test stability and identify simple weaknesses. Make small adjustments to improve balance and strength.
Key vocabulary	fabric felt needle	Wheel Axle Chassis	Material Structure



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

	thread running stitch template join material decorate design	Mechanism movement Extended rotate Align Fix Attach control	join stable balance rigid attach build
Design Process	Research Explore and handle simple textile products (e.g. puppets). Identify who they are for and what they are used for. Design Generate ideas based on own experiences. Draw and label a simple design. Identify simple design criteria (e.g. strong, suitable for user). Make Select materials and tools with support. Follow a simple sequence of steps to construct the product. Evaluate Describe what they like and dislike. Explain whether the product works for its purpose. Suggest one simple improvement.	Research Explore a range of simple vehicles and wheeled toys. Identify how wheels and axles are used to create movement. Design Generate ideas for a simple vehicle for a specific user and purpose. Draw and label a design showing wheels, axles and main components. Identify simple design criteria (e.g. moves smoothly, stable, suitable for user). Make Select materials and components with support. Follow a simple sequence of steps to construct the vehicle. Test movement during construction and make simple adjustments. Evaluate Test how well the vehicle moves. Describe what works well and what could be improved.	Research Explore a range of simple structures (e.g. rockets, towers). Identify features such as shape, height and base. Design Generate ideas for a structure for a specific user and purpose. Draw and label a simple design showing key parts. Identify simple design criteria (e.g. stable, strong, tall). Make Select materials and tools with support. Follow a simple sequence of steps to construct the structure. Test and adjust during construction. Evaluate Test whether the structure stands independently. Describe what works well and what could be improved. Explain whether it meets its purpose.

		Explain whether the product meets its purpose. Suggest one simple improvement.	Suggest one simple improvement.
Possible Adaptations	Larger needles and thicker thread Adult support for knotting and threading Visual step-by-step instructions Pre-cut templates for some pupils Extension: experiment with additional decorative stitches	Pre-cut chassis templates where needed Pre-made axle guides or holes Adult support attaching wheels and axles Visual examples of working wheel and axle systems Simplified joining methods such as tape or sticky fixers Extension: experiment with wheel size, axle placement or additional decorative features	Pre-selected joining materials Adult support with cutting and joining Visual examples of stable structures Challenge cards for improving height or stability Extension: test and improve structure independently



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

Topic/Term	Autumn: Food Picnic Pizzas & Fruit Kebabs	Spring: Mechanisms – Levers and Pivots Shadow Puppets	Summer: Structures – Shell Structures Boxes
Core knowledge	Food is designed and prepared for a specific user and purpose. Food comes from plants or animals and is grown, reared or caught. Food must be prepared safely and hygienically to prevent harm. Fruit and vegetables are part of a healthy and balanced diet. Different foods can be combined to create simple dishes.	Mechanisms are designed for a specific user and purpose. An input produces an output movement in a mechanical system. Levers and pivots control how movement is transferred. Linkages can be used to extend or change the direction of movement. The design of a mechanism affects how clearly and effectively movement is produced.	Structures are designed for a specific user and purpose. Nets are used to create 3D structures from 2D shapes. Tabs are used to join and strengthen edges. Materials affect the strength and durability of a structure. Shell structures must be strong enough to protect their contents.
Skills	Wash hands and prepare a workspace independently. Use a table knife to cut low-resistance foods safely. Spread soft ingredients with control. Use a grater and scissors/snips with developing control. Thread soft food onto skewers safely. Assemble ingredients to create a simple dish.	Construct lever and linkage mechanisms with increasing accuracy. Create secure pivot points to enable controlled movement. Use linkages to change or extend movement. Combine components to produce a clear input and output. Test and adjust mechanisms to improve movement and control.	Measure and draw a simple net using a ruler with increasing accuracy. Cut, score and fold materials accurately along lines. Use tabs to assemble a secure and stable structure. Select appropriate materials for strength and purpose. Test and adjust the structure to improve fit and durability.
Key vocabulary	Hygiene Fruit Vegetable Cut Grate ingredients healthy prepare combine	lever pivot input output mechanism linkage control transfer movement	net 2d 3d tab structure fold score assemble



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

	balanced		
Design Process	Research Explore a range of simple foods (e.g. picnic foods). Identify who the food is for and its purpose. Design Generate ideas for a simple dish. Choose ingredients based on purpose. Identify simple design criteria (e.g. healthy, easy to eat). Make Select ingredients and tools with support. Follow a simple sequence of steps to prepare food safely. Evaluate Describe taste and appearance. Explain whether the food is suitable for its purpose. Suggest one simple improvement.	Research Explore puppets and moving models that use mechanical systems. Identify how movement is created using levers and linkages. Design Design a puppet for a specific user and purpose. Develop simple design criteria (e.g. movement is clear, controlled and effective). Produce a labelled design showing input, output and mechanism type. Make Select appropriate materials and components. Construct the mechanism with increasing independence. Test movement during construction and adjust where needed. Evaluate Evaluate how effectively the mechanism works. Compare outcome with design criteria. Explain what could be improved (e.g. clearer movement, smoother control).	Research Explore a range of packaging and box structures. Identify how shape and materials affect function. Design Design a structure for a specific user and purpose. Develop simple design criteria (e.g. strong, secure, suitable size). Draw and label a net showing folds, tabs and shape. Make Select appropriate materials and tools. Construct the net and assemble the structure with increasing accuracy. Make adjustments during construction to improve fit. Evaluate Test whether the structure is strong and fit for purpose. Evaluate against design criteria. Explain how well the structure meets its purpose. Suggest improvements.
Possible Adaptations	Pre-chopped ingredients where appropriate	Pre-made linkage examples	Pre-drawn nets for some pupils



NO OUTSIDERS
EVERYONE IS WELCOME.
'Aspire to be Amazing'

	Visual recipe cards Adaptive grip knives if needed Adult modelling of cutting techniques Extension: choose and justify ingredient combinations	Simplified templates for some pupils Adult support securing pivots Visual diagrams of input and output Extension: combine multiple linkages	Scoring guides and ruler support Adult support with measuring Visual examples of tabs and folds Extension: design own net independently
--	---	--	--

Year 2/3 Cycle B (Owls)

Topic/Term	Autumn: Food Simple Fairy Cakes	Spring: Mechanisms: Pneumatic Systems	Summer: Textiles
-------------------	--	--	-------------------------

Core knowledge	Food is designed and prepared for a specific user and purpose. Ingredients must be measured to ensure a consistent outcome. Mixing and whisking combine ingredients to create a smooth batter. Heat causes ingredients to change during baking, allowing products to rise and set. A balanced diet includes a variety of foods, including occasional treats.	Pneumatic systems are designed for a specific user and purpose. Air pressure is used to create movement in a pneumatic system. An input (push) produces an output movement. The design of a system affects how controlled and effective the movement is. Pneumatic systems can be used to create purposeful and engaging effects.	Textile products are designed for a specific user and purpose. Templates are used to ensure accuracy and consistency when cutting fabric. A running stitch is used to join fabric pieces securely. Stitch type and spacing affect strength and appearance. Additional stitches (e.g. cross stitch) can be used for decoration. Finishing techniques (e.g. pinking) help prevent fraying.
Skills	Measure ingredients using scales or jugs with increasing accuracy. Mix and whisk ingredients to achieve a smooth, even consistency. Transfer mixture evenly into cases. Follow a simple recipe with growing independence. Make simple decisions about decoration and presentation.	Connect syringes and tubing securely to create a pneumatic system. Apply pressure to produce controlled movement. Construct a simple model with moving parts. Test and adjust the system to improve movement and reliability. Refine connections to improve control and consistency.	Use templates to mark and cut matching fabric shapes with increasing accuracy. Use a running stitch with improved control and more consistent spacing. Use decorative stitches (e.g. cross stitch) to enhance appearance. Assemble components to create a finished product. Make decisions about layout and decoration.
Key vocabulary	Measure Mix Whisk ingredients grams millilitres batter bake rise	Pneumatic Pressure System Input output control force movement connect	Template Fabric running stitch cross stitch fray decorate accurate join design

Design Process	Research Explore a range of cakes and baked products. Identify features such as flavour, appearance and purpose. Design Design a product for a specific user and purpose. Develop simple design criteria (e.g. appealing, suitable, well-presented). Produce a labelled plan showing flavour, decoration and presentation. Make Select ingredients and follow a recipe with increasing independence. Make decisions during preparation (e.g. decoration, presentation). Evaluate Evaluate against design criteria. Describe taste, texture and appearance. Explain how well the product meets its purpose. Suggest improvements.	Research Explore moving models and toys that use pneumatic systems. Identify how air pressure is used to create movement. Design Design a moving model for a specific user and purpose. Develop simple design criteria (e.g. movement is controlled, clear and effective). Produce a labelled diagram showing input, output and system components. Make Select appropriate materials and components. Construct the pneumatic system and model. Test movement during construction and adjust connections where needed. Evaluate Evaluate how effectively the system works. Compare outcome with design criteria. Explain what could be improved (e.g. smoother movement, better control).	Research Explore a range of textile products (e.g. purses, cases). Identify how they are used and constructed. Design Design a product for a specific user and purpose. Develop simple design criteria (e.g. strong, neat, appropriate size). Produce a labelled design showing shape, joining method and decoration. Make Select materials and techniques appropriately. Construct the product using templates and stitches. Make decisions during construction (e.g. placement, assembly). Evaluate Evaluate against design criteria. Assess the quality of stitching and overall finish. Explain how well the product meets its purpose. Suggest improvements.
Adaptations	Visual recipe cards	Pre-cut tubing lengths	Pre-cut fabric pieces where needed



	Pre-measured ingredients where needed	Adult support attaching syringes	Stitching guides or marked holes
	Adult support using scales Adaptive mixing tools if required	Visual diagrams of airflow systems	Adult support threading needles
	Extension: adapt decoration or flavour independently	Simplified models for some pupils Extension: create multiple moving parts	Visual examples of stitch types Extension: incorporate additional decorative techniques

Year 4/5 Cycle A (Peregrine class)

Topic/Term	Autumn: Electrical – Simple Circuits Steady Hand Game	Spring: Structures – frame structures Wildlife Shelters	Summer: Food Salad
------------	--	--	--------------------



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

Core knowledge	Electrical systems are designed to create a response for a specific user and purpose. Electrical circuits must be complete for electricity to flow. A circuit includes components such as a battery, wires and an output device. Conductors allow electricity to pass through a circuit. Insulators prevent electricity from passing through a circuit. The design of a circuit affects how a product works and responds.	Know frame structures must be strong and stable to perform their function. Know triangles and cross-bracing increase rigidity and strength. Know materials and joining techniques affect stability and durability. Know shelters are designed to protect users from weather and environmental conditions. Know structures can be tested and improved through evaluation and iteration.	Food is designed and prepared for a specific user and purpose. A balanced diet provides energy and essential nutrients. Food is grown, reared and caught both in the UK and globally. Ingredients can be combined to create flavour, texture and consistency. Cooking changes ingredients through heat (e.g. softening, blending flavours). Food choices can be influenced by seasonality and availability.
Skills	Construct a complete circuit using wires, a battery and components. Attach components securely using connectors (e.g. crocodile clips). Combine electrical and physical components to create a functional product. Test circuits to check that they work reliably. Make adjustments to improve performance and reliability.	Construct a frame structure using art straws and joining techniques. Measure, cut and assemble components with increasing accuracy. Use cross-bracing to strengthen a structure. Test structures to identify weaknesses and instability. Adapt and improve structures based on testing and evaluation.	Use a claw grip and bridge hold to cut a range of ingredients safely and accurately. Prepare ingredients using appropriate tools (e.g. peelers, graters) with increasing independence. Measure ingredients accurately using scales or jugs. Combine ingredients to create a balanced dish. Cook ingredients using appropriate methods (e.g. mixing, assembling, heating where appropriate). Make decisions during preparation (e.g. flavour



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

			combinations, presentation).
Key vocabulary	circuit battery wire bulb buzzer conductor insulator complete circuit component connection current	structure frame stability reinforce rigidity cross-bracing join shelter durable	balanced diet energy nutrients claw grip bridge hold seasonality prepare combine source
Design Process	Research Explore products that use electrical systems (e.g. games, alarms). Identify how circuits are used to create a response. Design Design a product for a specific user and purpose. Develop clear design criteria (e.g. works reliably, safe, effective). Produce a labelled diagram showing components and connections. Make Select appropriate components and materials. Construct the circuit and combine with a physical product. Test and adjust during construction. Evaluate Evaluate against design criteria.	Research Investigate a range of animal shelters and frame structures. Identify how shape, reinforcement and materials affect stability and protection. Design Design a shelter for a specific animal and purpose. Develop clear design criteria (e.g. stable, strong, protective). Produce a labelled design showing frame structure and reinforcement points. Make Select appropriate materials and construction techniques. Construct the structure with increasing accuracy and control. Test and refine during construction. Evaluate Test the stability and strength of the structure.	Research Explore a range of dishes and ingredients. Investigate where ingredients come from and how they are used. Design Design a dish for a specific user and purpose. Develop clear design criteria (e.g. balanced, appealing, suitable). Produce a labelled plan showing ingredients and presentation. Make Prepare and combine ingredients safely and independently. Make decisions during preparation (e.g. combinations, presentation). Evaluate Evaluate against design criteria. Assess taste, texture, appearance and nutritional value.



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

	Test reliability and function. Identify strengths and areas for improvement. Suggest improvements.	Evaluate against design criteria. Identify strengths and areas for improvement. Suggest and implement improvements.	Identify strengths and areas for improvement. Suggest improvements.
Adaptations	Colour-coded circuit diagrams Pre-stripped wires where needed Adult modelling of circuit assembly Simplified circuit layouts for some pupils Extension: add additional circuit components	Pre-cut art straws where needed Visual examples of reinforced structures Adult support with measuring and joining Simplified frame templates for some pupils Extension: strengthen structures using additional reinforcement techniques	Visual preparation guides Adult modelling of claw and bridge grip Pre-prepared ingredients where appropriate Recipe sequencing cards Extension: adapt flavours or presentation independently

Year 4/5 Cycle B (Peregrine)

Topic/Term	Autumn: Textiles – Combining 2D shapes to make a 3D product Christmas Decorations	Spring: Mechanisms – Siders, Levers, Folds Pop-up Books	Summer: Food Pasta Sauce
-------------------	--	--	---------------------------------

Core knowledge	Textile products are designed for a specific user and purpose. Appliqué is used to attach fabric shapes for decoration. Joining fabric inside out improves the overall finish by hiding seams. Wadding can be used to add shape, structure and volume. The order of construction affects the quality and finish of a product.	Mechanisms are designed to create movement for a specific user and purpose. Different mechanisms (e.g. sliders, levers and folds) create different types of movement. Input and output describe how movement is transferred through a system. Combining mechanisms can create more complex and engaging movement. Structure and layering support and guide movement within a product.	Food is designed and prepared for a specific user and purpose. Ingredients can be combined to create flavour, texture and consistency. Cooking changes ingredients through heat (e.g. softening, blending flavours). A balanced meal includes a variety of nutrients. Ingredients may be sourced from different places globally.
Skills	Use templates to mark and cut fabric accurately and consistently. Apply appliqué decoration before assembly. Join fabric pieces and turn them inside out to improve finish. Add wadding and close seams carefully. Follow a planned sequence of construction with increasing independence.	Construct a range of mechanisms (e.g. sliders, levers, folds) with accuracy. Combine multiple mechanisms within a single product. Assemble layers carefully to support and control movement. Test and adjust mechanisms to improve reliability and effect. Refine construction to improve quality and finish.	Use a claw grip and bridge hold to cut a range of ingredients safely and accurately. Prepare ingredients using appropriate tools with increasing independence. Measure ingredients accurately using scales or jugs. Combine and cook ingredients using appropriate methods (e.g. simmering). Adjust flavour and texture during cooking (e.g. seasoning, reducing liquid).
Key vocabulary	Appliqué Seam wadding decorate structure join finish	Mechanism Input output lever slider fold layer	Ingredients Cook combine flavour texture nutrition source



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

	assemble	movement	prepare
Design Process	Research Explore a range of textile decorations and techniques. Identify how design and construction affect appearance and function. Design Design a product for a specific user and purpose. Develop clear design criteria (e.g. attractive, durable, well-finished). Produce a labelled design showing components, decoration and construction order. Make Select appropriate materials and techniques. Follow a planned sequence (decorate → join → turn → fill). Test and adjust during construction to improve quality. Evaluate Evaluate against design criteria. Assess appearance, finish and durability. Identify strengths and areas for improvement. Suggest and implement improvements.	Research Explore products that use multiple mechanisms (e.g. pop-up books). Identify how movement is created and used to engage the user. Design Design a product for a specific user or audience. Develop clear design criteria (e.g. movement is engaging, reliable and effective). Produce labelled diagrams showing mechanism types and movement direction. Make Select materials and techniques appropriately. Construct and combine mechanisms with increasing independence. Test and refine during construction. Evaluate Evaluate how effectively the mechanisms work. Compare outcome with design criteria. Identify strengths and areas for improvement. Suggest improvements.	Research Explore a range of pasta sauces and ingredients. Investigate different flavour combinations and sources. Design Design a sauce for a specific user and purpose. Develop clear design criteria (e.g. tasty, balanced, suitable). Plan ingredients and method. Make Prepare and cook ingredients safely and independently. Make decisions during cooking (e.g. flavour, texture adjustments). Evaluate Evaluate against design criteria. Assess flavour, texture and suitability. Identify strengths and areas for improvement. Suggest improvements.
Adaptations	Pre-cut templates where needed	Pre-folded mechanism examples	Visual recipe instructions



NO OUTSIDERS
EVERYONE IS WELCOME.
'Aspire to be Amazing'

	Stitch guides for seam placement	Visual movement diagrams	Adult support using heat safely
	Adult support turning fabric inside out	Adult support assembling layers	Pre-prepared ingredients where appropriate
	Visual examples of appliqué	Simplified mechanisms for some pupils	Word banks for flavour descriptions
	Extension: design more complex decoration independently	Extension: combine multiple movement types	Extension: adapt seasoning independently

Year 5/6 Cycle A (Buzzard class)

Topic/Term	Autumn: Textiles – multi-piece product Bags	Spring: Food – adapting a recipe Soup	Summer: Mechanisms: CAMS Moving Toys
-------------------	--	--	---

Core knowledge	Textile products must meet the needs of a specific user and purpose. A running stitch can be adapted in size and spacing to affect strength and appearance. Smaller, evenly spaced stitches improve durability and finish. A seam allowance ensures accuracy and prevents fraying. Fabric choice and construction methods affect function and durability.	Food is designed and prepared to meet the needs of a specific user and purpose. Foods contain nutrients (e.g. carbohydrates, protein, fats, fibre) needed for health. A balanced diet supports health and energy levels. Seasonality affects the availability and sustainability of ingredients. Recipes can be adapted to improve nutrition, taste, texture and appearance. Cooking processes change ingredients and affect the final product.	Mechanical systems are designed to create and control movement for a specific user and purpose. CAM mechanisms convert rotary motion into linear or oscillating movement. The shape of a CAM affects the type of movement produced. A follower tracks the CAM to transfer movement. The design of a CAM system affects the quality and consistency of movement.
Skills	Measure and mark fabric accurately, including seam allowance. Cut fabric precisely using appropriate tools. Use a running stitch with consistent spacing and controlled tension. Assemble multiple components (e.g. body, handles) accurately. Make adjustments during construction to improve quality and finish.	Measure ingredients accurately using scales and measuring equipment. Cut a range of ingredients, including higher-resistance foods, safely and with precision. Prepare and cook ingredients independently using appropriate techniques. Adapt a recipe during preparation (e.g. seasoning, texture, consistency). Combine ingredients to achieve a desired outcome. Refine techniques to	Construct a CAM and follower system with accuracy. Secure components to ensure controlled and consistent movement. Select and shape CAMs to achieve a desired movement. Combine mechanical and structural elements effectively. Test and adjust the system to improve movement quality and reliability.



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

		improve quality and consistency.	
Key vocabulary	running stitch seam seam allowance fabric stitch tension durability reinforce construction accurate consistent	nutrients fibre balanced diet seasonality recipe adaptation texture aroma process ingredients	cam follower rotary motion linear motion oscillating mechanism input output motion
Design Process	Research Investigate a range of bags and textile products. Analyse how construction techniques affect strength, function and appearance. Design Develop a detailed design specification based on user needs. Produce annotated designs showing components, seam allowance and construction methods. Make Select materials and techniques based on purpose. Construct the product with accuracy and attention to quality. Test and refine during construction. Evaluate Evaluate against the design specification. Assess strength, durability and quality of finish.	Research Investigate a range of recipes and dishes. Explore how recipes vary depending on culture, season and purpose. Design Develop a design brief and detailed specification (e.g. nutrition, taste, cost, availability). Plan a recipe with justification for ingredient choices. Make Prepare and cook independently using a range of techniques. Adapt the recipe during cooking to improve the final outcome. Evaluate Evaluate against the design specification. Assess nutritional value, taste, texture and suitability. Justify decisions and adaptations made.	Research Investigate toys and products that use CAM mechanisms. Identify how rotary motion is converted into movement. Design Design a toy for a specific user and purpose. Develop a detailed design specification (e.g. movement type, reliability, appearance). Produce annotated diagrams showing CAM shape, follower and movement. Make Select appropriate materials and components. Construct the CAM system with precision. Test and refine during construction. Evaluate Evaluate movement



NO OUTSIDERS
EVERYONE IS WELCOME.
'Aspire to be Amazing'

	Justify design decisions. Suggest and implement improvements.	Suggest and implement improvements.	quality and reliability against the design specification. Assess how effectively the movement meets its purpose. Justify design decisions. Suggest and implement improvements.
Adaptations	Pre-marked seam allowances where needed Adult modelling of accurate stitching Scaffolded design templates Visual examples of finished products Extension: add internal compartments or fastenings	Recipe scaffolds and planning templates Adult supervision with higher-resistance cutting Visual examples of adapted recipes Ingredient alternatives provided Extension: adapt recipe for dietary needs or nutrition	Pre-cut CAM templates for some pupils Visual examples of CAM shapes Adult support securing axles and components Testing stations for refining movement Extension: create more complex movement patterns

Year 5/6 Cycle B

Topic/Term	Autumn: Structures – more complex structures Bridges	Spring: Electrical – more complex circuits Electrical Quiz Games	Summer: Mechanisms – Gears and Pulleys Fairground Rides
Core knowledge	Structures are designed to meet the needs of a specific user and purpose. Different bridge types (e.g.	Electrical systems are designed to perform a specific function for a user and purpose.	Mechanical systems are designed to transfer and control movement for a specific user and purpose.

	beam, arch, truss) are designed for different spans and loads. Strength and stability depend on structure, materials and reinforcement. Triangles and trusses increase rigidity and load-bearing capacity. Materials must be selected based on their properties and suitability. Structures can be tested and improved through iteration.	Electrical circuits must be complete for current to flow. Components can be combined to create functional systems. Inputs and outputs can be used to control how a system responds. The design of a circuit affects its reliability and performance.	Gears are used to change the speed, direction and force of movement. The size and arrangement of gears affect how a system performs. Pulleys are used to transfer movement and reduce effort. The design of a mechanical system affects its performance, reliability and effectiveness.
Skills	Select materials based on strength and suitability. Construct a reinforced structure using techniques such as triangulation. Measure, mark and assemble components with precision. Test structures to identify weaknesses. Modify and refine designs to improve strength and performance.	Construct a complete circuit using multiple components. Combine electrical and physical elements to create a functional product. Organise and secure components to ensure reliability. Test circuits and identify faults. Modify and improve circuit design to enhance performance.	Construct gear and pulley systems with accuracy. Secure components to ensure controlled and consistent movement. Combine mechanical systems with structures. Test movement and identify areas for improvement. Refine and adjust systems to improve performance and reliability.
Key vocabulary	Bridge Truss Load structure span compression tension stability reinforce	Circuit Component Wire battery conductor insulator connection system current	Gear Pulley Driver follower motion force rotation mechanism system



NO OUTSIDERS

EVERYONE IS WELCOME.

'Aspire to be Amazing'

Design Process	Research Investigate different bridge types and their uses. Analyse how structure and materials affect strength and performance. Design Develop a detailed design specification (e.g. span, load, materials, strength). Produce annotated diagrams showing structure type, reinforcement and key dimensions. Make Select appropriate materials and construction methods. Construct the structure with precision. Test and refine during the making process. Evaluate Test load-bearing capacity. Evaluate against the design specification. Justify design decisions. Suggest and implement improvements.	Research Explore a range of products that use electrical systems (e.g. quiz games). Identify how circuits are used to create controlled responses. Design Develop a detailed design specification (e.g. function, reliability, user). Produce annotated circuit diagrams showing components, connections and input/output. Make Select appropriate components and materials. Construct the circuit and integrate it into a product. Test and refine during construction. Evaluate Evaluate functionality and reliability against the design specification. Assess how effectively the system meets its purpose. Justify design decisions. Suggest and implement improvements.	Research Investigate fairground rides and mechanical systems. Analyse how gears and pulleys are used to create and control movement. Design Develop a detailed design specification (e.g. movement type, function, user). Produce annotated diagrams showing components, movement and direction. Make Select appropriate materials and components. Construct and combine systems with precision. Test and refine during construction. Evaluate Evaluate performance and reliability against the design specification. Assess how effectively the system meets its purpose. Justify design decisions. Suggest and implement improvements.
Adaptations	Pre-measured materials if needed Scaffolded bridge diagrams	Colour-coded circuit diagrams Fault-finding checklists Adult modelling of troubleshooting	Pre-built examples of gear systems Visual diagrams showing direction of movement



	Visual examples of trusses and reinforcement Group construction opportunities Extension: increase load-bearing capacity through redesign	Simplified circuit plans where appropriate Extension: create more complex inputs and outputs	Adult support aligning components Simplified pulley systems for some pupils Extension: combine gears and pulleys within one system
--	---	--	---