King’s Meadow Academy

Design Technology

Subject Statement Design Technology

Rationale	At King's Meadow Academy, we believe Design and Technology inspires children to become creative thinkers, innovative designers and confident problem-solvers. Through designing, making and evaluating purposeful products, pupils develop practical skills whilst applying knowledge from across the curriculum, including science, mathematics, computing and art. Design Technology encourages children to identify problems, generate ideas, test solutions and reflect on how products can be improved. Through meaningful, real-life contexts, pupils develop resilience, creativity and independence whilst understanding how design influences everyday life, improves society and shapes the future. Through our whole-school 4Cs pedagogy, pupils connect prior learning, develop practical expertise through explicit teaching, embrace increasingly complex design challenges and refine their thinking through continuous coaching and reflection.
Vision for the Curriculum	Our vision is for every child to become an imaginative, resilient and reflective designer who confidently applies knowledge and practical skills to solve real-world problems. We want pupils to understand the complete design process, from identifying a need to evaluating a finished product, whilst developing confidence in selecting materials, using tools safely and improving their ideas. Through our Reading Enhanced Curriculum, pupils explore the work of influential designers, engineers, architects, inventors and chefs, developing an appreciation of how design and innovation have transformed lives and continue to shape the world around us. Through connected learning, ambitious practical challenges and continual refinement of their ideas, pupils become increasingly confident, resilient and reflective designers.
Intent	Our Design and Technology curriculum is carefully sequenced from the Early Years through to Year 6 to progressively develop children's knowledge, technical skills and creativity. Through our Reading Enhanced Curriculum, pupils develop both substantive knowledge (materials, structures, mechanisms, textiles, food and nutrition and electrical systems) and disciplinary knowledge by applying the design process to increasingly challenging projects. Every unit is centred around a meaningful design challenge driven by an overarching Big Question that encourages children to think creatively, solve problems and design for a real purpose and audience. Reading enriches each unit through carefully selected texts that introduce significant designers, inventors and engineers whilst developing ambitious subject-specific vocabulary. The curriculum identifies clear Key Concepts to Assess within every lesson, ensuring that essential knowledge, technical understanding and practical skills are explicitly taught, revisited and assessed over time. Through regular retrieval practice and repeated opportunities to design, make and evaluate, children strengthen their understanding and become increasingly independent designers. These experiences reflect King's Meadow Academy's 4Cs pedagogy by ensuring pupils Connect prior learning, Cultivate new technical knowledge, embrace increasingly Challenging design briefs and continually improve through Coaching and feedback. We aim for every pupil to: develop secure knowledge of materials, mechanisms, structures, textiles, food and electrical systems; understand and confidently apply the iterative design process of designing, making and evaluating;

	develop creativity, resilience and confidence when solving practical problems; use tools, equipment and materials safely and effectively; understand how design and technology improve everyday life and contribute to future innovation.
Implementation	Design and Technology is taught through carefully planned units across our mixed-age curriculum, ensuring full National Curriculum coverage and clear progression between year groups. Learning is sequenced so that pupils revisit previous knowledge before applying increasingly sophisticated design and manufacturing techniques. Each unit follows the design process of investigating, designing, making and evaluating. Lessons begin with retrieval practice to revisit prior learning before introducing new technical knowledge, vocabulary and practical skills through explicit teaching and modelling. Children investigate existing products, evaluate their effectiveness and use this knowledge to inform their own designs. They learn to select appropriate materials, tools and techniques before constructing purposeful products that meet a clearly defined design brief. Throughout each project, pupils evaluate and refine their ideas, recognising that successful design is an iterative process. The Key Concepts to Assess identify the essential learning for every lesson and demonstrate progression between year groups within mixed-age classes. These concepts are revisited through retrieval activities, practical application and teacher assessment to ensure knowledge and skills are embedded over time. Reading is woven throughout the curriculum through high-quality texts, enabling pupils to explore the work of significant designers, engineers, architects, inventors and chefs whilst understanding the wider impact of design and technology on society. Teachers carefully sequence learning so pupils continually connect previous knowledge with new techniques before independently applying them to increasingly complex design challenges.
Impact	By the end of Key Stage Two, pupils leave King's Meadow Academy with the confidence to design, make and evaluate purposeful products using an increasingly wide range of tools, materials and techniques. They apply technical knowledge independently, communicate their ideas using accurate design vocabulary and evaluate products thoughtfully to improve outcomes. Children demonstrate progression through the successful acquisition of the Key Concepts to Assess, applying previous knowledge to new design challenges and making meaningful links between Design and Technology and other curriculum subjects. Assessment demonstrates that pupils become increasingly skilled at solving practical problems, working collaboratively, thinking creatively and evaluating critically. They leave primary school prepared to continue developing as designers, engineers and innovators at Key Stage Three. Through consistent application of the 4Cs pedagogy, pupils become increasingly confident at connecting prior knowledge, thinking creatively, evaluating critically and refining their work independently.

Pedagogical Approach	Design and Technology is taught through King's Meadow Academy's whole-school pedagogical approach. Learning begins by Connecting to previous knowledge through retrieval activities, discussion and the evaluation of existing products. Teachers Cultivate new learning through explicit instruction, modelling technical skills, demonstrating safe use of tools and introducing ambitious subject-specific vocabulary. Practical skills are taught progressively before children independently apply them to meaningful design challenges. Children are Challenged to think creatively, solve problems, refine designs and justify decisions throughout the design process. They are encouraged to evaluate products critically, identify improvements and understand that successful design develops through testing, adaptation and resilience. Teachers continually Coach pupils through responsive questioning, live feedback and formative assessment, ensuring misconceptions are addressed and technical skills are developed progressively. Opportunities for collaboration, reflection and evaluation ensure pupils become increasingly confident and independent designers. Teachers continually challenge and support pupils through responsive questioning, live feedback and formative assessment, ensuring misconceptions are addressed and technical skills are developed progressively. Opportunities for collaboration, reflection and evaluation ensure pupils become increasingly confident and independent designers.
Adaptations for SEND learners	Our Design and Technology curriculum is designed to ensure that every pupil can access ambitious learning whilst receiving the support they need to succeed. Teachers reduce cognitive load by introducing new knowledge and practical skills in small, manageable steps supported by clear demonstrations and visual modelling. Practical tasks are scaffolded through the use of step-by-step instructions, photographs, design templates, word banks, sentence stems and adapted equipment where appropriate. Key vocabulary is explicitly taught and revisited regularly to develop understanding and confidence. Children are given opportunities to rehearse practical techniques before applying them independently. Adults provide additional modelling, guided practice and targeted support where required, whilst maintaining high expectations for creativity, independence and problem solving. Flexible grouping, adapted tools and additional time ensure all pupils can participate fully in the design process. Throughout every unit, teachers continue to Connect learning to pupils' prior experiences, Cultivate understanding through modelling and scaffolded instruction, provide appropriate Challenge through carefully adapted design tasks and Coach pupils through timely feedback so that every learner can achieve success.
Strengths	Carefully sequenced mixed-age curriculum with clear progression from Early Years to Year 6. Strong emphasis on the complete design process of investigating, designing, making and evaluating. Reading Enhanced Curriculum enriches learning through high-quality texts and influential designers, engineers, inventors, architects and chefs. Clearly identified Key Concepts to Assess provide precise assessment opportunities and demonstrate progression across year groups.

	Practical, hands-on learning develops creativity, resilience, independence and problem-solving skills. Progressive teaching of technical knowledge, materials, mechanisms, structures, textiles, food and nutrition and electrical systems. Retrieval practice and the 4Cs pedagogical approach ensure knowledge and practical skills are revisited, retained and applied confidently. Rich opportunities for pupils to design products with meaningful real-life purposes, preparing them for future learning and careers in engineering, manufacturing, architecture, food technology and design.

King's Meadow Academy

Medium Term

Cycle A

]

Autumn 2		
KS1	**Mechanisms**	
	Year 1	**Year 2**
	L1 – What makes a good wheel? L2 – How do wheels make a vehicle move? L3A – How do we fix wheels to a vehicle and still allow them to move? L3B – How can we make a new vehicle? L3C – How can we evaluate our vehicle?	L1 – What makes a good wheel? L2 – How do wheels make a vehicle move? L3A – How do we fix wheels to a vehicle and still allow them to move? L3B – How can we make a new vehicle? L3C – How can we evaluate our vehicle?
Key Concepts to assess	L1 – Children know the purpose of a wheel and can explain that wheels help objects move. L2 – Children can identify the wheel, axle and chassis on a simple vehicle and explain their purpose. L3A – Children can make a simple chassis using wheels and axles and explain the difference between a fixed axle and a freely moving axle. L3B – Children can use their knowledge of wheels, axles and chassis to design and make a vehicle that carries a toy. L3C – Children can evaluate whether their vehicle moves successfully and suggest one improvement.	L1 – Children can explain how wheels and axles work together to make vehicles move efficiently. L2 – Children can investigate how the position of an axle affects how smoothly a vehicle moves and explain their findings. L3A – Children can independently construct a strong chassis with accurately fitted wheels and axles, selecting between fixed and freely moving axles. L3B – Children can design and make a vehicle that meets a simple design brief, selecting appropriate materials and construction techniques. L3C – Children can evaluate their finished vehicle against the design brief, compare it with others and explain improvements that would make it more effective.
Vocabulary	wheel, axle, chassis, vehicle, fixed axle, freely moving axle, dowel, cotton reel, rotate, design, make, evaluate, construction, movement	Y1+ mechanism, stability, strength, function, design brief, prototype, performance, modify, improve, effectiveness
Experiences	Investigate a range of toy vehicles to identify wheels, axles and chassis and explore how they work together. Experiment with construction kits to investigate how changing the position of the axle affects movement. Design and build a vehicle capable of carrying a toy, testing different wheel and axle arrangements. Hold a class vehicle challenge where pupils test, evaluate and improve their designs against the original design brief.	
SMSC	Social – Working collaboratively to design, build and evaluate vehicles while sharing ideas and solving problems together. Cultural – Recognising how transport design has developed over time to meet changing needs. Moral – Understanding the importance of designing products that are safe, fit for purpose and sustainable.	
British Values	Individual Liberty – Making independent design decisions and selecting materials to solve a problem. Mutual Respect – Respecting the ideas and designs of others and providing constructive feedback. Tolerance – Appreciating that there are different ways to solve the same design problem.	
School Values	We are happy – Enjoying designing, building and testing our own moving vehicles. We are safe – Using tools and construction materials safely and responsibly. We enjoy a challenge – Solving problems and improving our designs through testing and evaluation. We celebrate diversity – Appreciating different design ideas and recognising that everyone can be creative. We show respect – Respecting equipment, resources and the ideas of others throughout the design process. We are ready and fit for our future – Developing creativity, resilience, teamwork and engineering skills through practical design challenges.	

Spring 1		
KS1	**Cooking and Nutrition**	
	Year 1	**Year 2**
	L1 – Where does our food come from? L2 – Why do we need to eat five portions of fruit and vegetables each day? L3A – What foods are healthy for us? L3B – How do we prepare food? L4 – Does all food look and taste the same?	L1 – Where does our food come from? L2 – Why do we need to eat five portions of fruit and vegetables each day? L3A – What foods are healthy for us? L3B – How do we prepare food? L4 – Does all food look and taste the same?
Key Concepts to assess	L1 – Children know that food comes from plants and animals and can identify the source of familiar foods. L2 – Children know that eating at least five portions of fruit and vegetables each day helps to keep us healthy. L3A – Children can identify foods that make a healthy meal and explain simple healthy food choices. L3B – Children can prepare food safely by washing their hands, using utensils correctly and mixing ingredients with support. L4 – Children can describe the taste, texture and appearance of different fruits and vegetables using simple vocabulary.	L1 – Children can explain where different foods come from and classify them as originating from plants or animals. L2 – Children can explain why a balanced diet includes a variety of fruit and vegetables and identify healthier food choices. L3A – Children can plan and prepare a simple healthy snack by selecting appropriate ingredients for a healthy meal. L3B – Children can demonstrate safe food preparation techniques, including holding fruit and vegetables correctly when cutting and using utensils safely and independently. L4 – Children can evaluate different fruits and vegetables by comparing their taste, texture, appearance and colour, explaining which combinations would make a healthy snack.
Vocabulary	healthy, unhealthy, balanced diet, fruit, vegetable, plant, animal, ingredient, prepare, chop, mix, spoon, knife, texture, taste, hygiene	Y1+ nutrition, balanced meal, food groups, ingredients, classify, evaluate, compare, safety, recipe, sensory, nutritious, preparation
Experiences	Investigate where everyday foods come from by sorting foods into those that come from plants and animals. Taste a variety of fruits and vegetables, describing their texture, flavour, smell and appearance using appropriate vocabulary. Prepare a healthy fruit or vegetable snack by safely washing, peeling, chopping and mixing ingredients. Evaluate the finished snack by discussing taste, texture, appearance and how it contributes to a healthy, balanced diet.	
SMSC	Social – Working collaboratively to prepare food safely, share equipment responsibly and evaluate food together. Cultural – Exploring healthy foods from different cultures and recognising that healthy diets can include a wide variety of foods. Moral – Understanding the importance of making healthy food choices and reducing food waste.	
British Values	Individual Liberty – Making informed choices about healthy eating and selecting ingredients independently. Mutual Respect – Respecting the opinions and food preferences of others during tasting and evaluation activities. Tolerance – Appreciating that healthy foods and meals vary across different cultures, traditions and families.	
School Values	We are happy – Enjoying preparing, tasting and evaluating a variety of healthy foods. We are safe – Following good hygiene practices and using kitchen equipment safely and responsibly. We enjoy a challenge – Developing food preparation skills and trying new foods with confidence. We celebrate diversity – Appreciating healthy foods and recipes from different cultures and recognising that everyone has different tastes. We show respect – Respecting food, equipment, the environment and the opinions of others during cooking activities. We are ready and fit for our future – Developing healthy lifestyles, independence, teamwork and practical life skills through food preparation.	

Autumn 2		
LKS2	**Construction**	
	Year 3	**Year 4**
	L1 – How are structures joined and made stable? L2A – How can we make a stable structure? L2B – How can we make a stable structure? L3 – Which materials create hidden joins? L4A – How can we recreate an Iron Age house? L4B – How can we recreate an Iron Age house? L4C – How can we recreate an Iron Age house?	L1 – How are structures joined and made stable? L2A – How can we make a stable structure? L2B – How can we make a stable structure? L3 – Which materials create hidden joins? L4A – How can we recreate an Iron Age house? L4B – How can we recreate an Iron Age house? L4C – How can we recreate an Iron Age house?
Key Concepts to assess	L1 – Children can use research about Iron Age houses to create a simple design for a freestanding structure and identify suitable construction materials. L2A – Children know that Ludwig Mies van der Rohe designed simple but strong structures and can create a mock-up to test the stability of a frame. L2B – Children can explain how buttresses strengthen a structure and select suitable materials to improve stability. L3 – Children can create simple hidden joins and use scoring techniques to strengthen a structure. L4A – Children can use their knowledge of structures, joins and materials to design a freestanding Iron Age house. L4B – Children can construct a freestanding Iron Age house using appropriate joins, buttresses and materials. L4C – Children can evaluate how effectively their Iron Age house meets the design brief and suggest improvements to increase strength and stability.	L1 – Children can use research and previous learning to design a stable freestanding Iron Age structure, justifying their choice of materials and construction methods. L2A – Children can explain how Ludwig Mies van der Rohe used structural design to create strength and stability and apply these principles within their own models. L2B – Children can independently test, evaluate and refine structures by selecting suitable buttresses and reinforcement techniques. L3 – Children can accurately create hidden joins and scoring techniques, selecting the most appropriate joining methods for different materials. L4A – Children can produce detailed labelled designs that explain how structures, joins and supports will be used to meet a design brief. L4B – Children can independently construct a strong and stable Iron Age house using accurate measuring, joining and reinforcement techniques. L4C – Children can critically evaluate their finished structure against the design brief, explaining how changes to materials, joins and supports could improve strength, function and appearance.
Vocabulary	structure, freestanding, stability, strength, buttress, support, frame, hidden join, scoring, reinforce, design brief, prototype, measure, construct, evaluate, Ludwig Mies van der Rohe	Y3+ framework, reinforcement, precision, durability, functionality, modification, craftsmanship, prototype, structural integrity, engineering, refine, resilience
Experiences	Investigate a range of structures to identify how frames, joins and buttresses improve strength and stability. Explore the work of Ludwig Mies van der Rohe, discussing how simple designs can create strong structures. Build and test a variety of frame structures before designing and constructing a freestanding Iron Age roundhouse. Carry out a strength test on completed structures, evaluating how effectively they meet the design brief and identifying improvements.	
SMSC	Social – Working collaboratively to solve structural problems, share ideas and evaluate designs respectfully. Cultural – Exploring how Iron Age communities designed and built homes using locally available materials and comparing these with modern structures. Moral – Understanding the importance of designing safe, strong and sustainable structures.	
British Values	Individual Liberty – Making independent design decisions and selecting appropriate construction methods. Mutual Respect – Respecting the ideas and engineering solutions of others during the design and evaluation process. Tolerance – Appreciating that there are many effective ways to solve the same design challenge.	

School Values	We are happy – Enjoying designing, building and testing strong freestanding structures. We are safe – Using tools, scissors and construction materials safely and responsibly. We enjoy a challenge – Developing resilience by testing, adapting and improving structures to make them stronger. We celebrate diversity – Appreciating different engineering ideas and recognising that everyone approaches design problems differently. We show respect – Respecting equipment, shared resources and the ideas of others throughout the design process. We are ready and fit for our future – Developing creativity, engineering skills, teamwork and problem-solving through practical structural design.

Spring 1		
LKS2	**Electrical Systems**	
	Year 3	**Year 4**
	L1 – How have mining helmet designs changed over the years? L2 – How do you make a bulb light up? L3 – How can you help miners to see safely? L4 – How might mining helmets change in the future?	L1 – How have mining helmet designs changed over the years? L2 – How do you make a bulb light up? L3 – How can you help miners to see safely? L4 – How might mining helmets change in the future?
Key Concepts to assess	L1 – Children know how mining helmet designs have changed over time and can explain how design improvements have made mining safer. L2 – Children know that electrical systems are used in everyday products and can create a simple electrical circuit to light a bulb. L3 – Children can use their scientific knowledge of electrical circuits to design a working mining helmet, including labelled diagrams and simple instructions. L4 – Children can explain how electrical components make products functional and evaluate how their mining helmet meets the design brief.	L1 – Children can explain how engineers have adapted mining helmet designs over time to solve design problems and improve safety. L2 – Children can confidently build and test a simple electrical circuit, explaining the input, process and output of the electrical system. L3 – Children can independently design and construct a working mining helmet, selecting suitable electrical components and considering safety throughout the design process. L4 – Children can evaluate and refine their design, explaining how changes to electrical systems and technological developments could improve the efficiency, safety and functionality of their mining helmet.
Vocabulary	electrical system, circuit, battery, bulb, switch, wire, input, process, output, conductor, insulator, design brief, prototype, engineer, safety	Y3+ component, innovation, efficiency, functionality, modification, evaluation, electrical connection, technological advancement, reliability, refine, product design
Experiences	Investigate the development of mining helmets over time, identifying how new technologies have improved safety for miners. Build and test simple electrical circuits using batteries, bulbs, switches and wires to understand how electrical systems work. Design and construct a working model mining helmet with a functioning electrical circuit that meets a design brief. Test and evaluate completed mining helmets, suggesting improvements to increase safety, functionality and reliability.	
SMSC	Social – Working collaboratively to solve design problems, test electrical systems and evaluate products respectfully. Cultural – Exploring how engineering and technological innovation have improved working conditions throughout history. Moral – Understanding the importance of designing products that protect people and improve safety in the workplace.	
British Values	Individual Liberty – Making independent design decisions and selecting appropriate electrical components to solve a problem.	

	Mutual Respect – Respecting the ideas and engineering solutions of others while working collaboratively. Tolerance – Appreciating that there are different approaches to solving the same design challenge.
School Values	We are happy – Enjoying designing, building and testing working electrical products. We are safe – Using electrical components and tools safely and responsibly throughout practical activities. We enjoy a challenge – Developing resilience by testing, evaluating and improving electrical designs. We celebrate diversity – Appreciating different engineering ideas and recognising that innovation comes from a range of perspectives. We show respect – Respecting equipment, shared resources and the ideas of others throughout the design process. We are ready and fit for our future – Developing creativity, problem-solving, teamwork and engineering skills through designing and making functional electrical products.

Summer 1		
LKS2	**Mechanisms**	
	Year 5	**Year 6**
	L1A – What are pulleys and levers? L1B – What are pulleys and levers? L1C – What are pulleys and levers? L2A – How do we change a product to lift different weights? L2B – How do we change a product to lift different weights? L3 – How were pulleys and levers used in Ancient Egypt and how does this compare with today? L4A – How can I adapt a shaduf? L4B – How can we adapt a shaduf?	L1A – What are pulleys and levers? L1B – What are pulleys and levers? L1C – What are pulleys and levers? L2A – How do we change a product to lift different weights? L2B – How do we change a product to lift different weights? L3 – How were pulleys and levers used in Ancient Egypt and how does this compare with today? L4A – How can I adapt a shaduf? L4B – How can we adapt a shaduf?
Key Concepts to assess	L1A – Children know that pulleys and levers are mechanisms used to lift, move and carry objects. L1B – Children can explain the difference between a lever and a pulley and describe how each creates movement. L1C – Children can investigate how pulleys and levers can be adapted to lift different loads. L2A – Children know that changing the position of the fulcrum changes how a lever works and can explain its effect. L2B – Children can adapt a simple lever or pulley system to lift different weights. L3 – Children know that William Armstrong designed the modern crane and can compare modern cranes with Ancient Egyptian shadufs. L4A – Children can use historical research to design a shaduf using labelled sketches and simple instructions. L4B – Children can evaluate how effectively their shaduf lifts different loads and suggest improvements to increase efficiency.	L1A – Children can explain how pulleys and levers provide mechanical advantage and identify where they are used in everyday engineering. L1B – Children can investigate and compare different pulley and lever systems, explaining which are most effective for different purposes. L1C – Children can independently adapt mechanisms to improve their ability to lift heavier loads. L2A – Children can explain how altering the position of the fulcrum changes force and efficiency and apply this understanding to improve a mechanism. L2B – Children can design, build and refine a lever or pulley system that meets a design brief. L3 – Children can evaluate how Ancient Egyptian shadufs influenced modern engineering, comparing their function with cranes and lifting mechanisms used today. L4A – Children can produce detailed annotated designs for a shaduf, applying accurate measurements and engineering knowledge. L4B – Children can critically evaluate and improve their shaduf by explaining how changes to the mechanism increase efficiency and functionality.

Vocabulary	lever, pulley, fulcrum, load, effort, mechanism, force, movement, lift, crane, shaduf, engineer, prototype, design brief, evaluate	Y3+ mechanical advantage, efficiency, functionality, engineering, refinement, annotation, measurement, stability, mechanical system, product evaluation
Experiences	Investigate pulleys and levers through practical challenges before designing and building a working Ancient Egyptian shaduf. Explore the work of William Armstrong, comparing modern cranes with Ancient Egyptian lifting mechanisms. .	
SMSC	Social – Working collaboratively to investigate mechanisms, solve engineering problems and evaluate designs respectfully. Cultural – Exploring how Ancient Egyptian engineering influenced modern lifting mechanisms and appreciating technological developments across different civilisations. Moral – Understanding the importance of designing safe, functional products that improve people's lives.	
British Values	Individual Liberty – Making independent design decisions when creating and improving a shaduf. Mutual Respect – Respecting the engineering ideas and solutions of others during the design and evaluation process. Tolerance – Appreciating that engineering problems can be solved in different ways.	
School Values	We are happy – Enjoying designing, building and testing working mechanisms. We are safe – Using tools, construction materials and mechanisms safely and responsibly. We enjoy a challenge – Developing resilience by testing, adapting and improving mechanisms to make them more efficient. We celebrate diversity – Appreciating engineering achievements from different cultures and recognising that innovation has shaped societies throughout history. We show respect – Respecting equipment, shared resources and the ideas of others throughout the design process. We are ready and fit for our future – Developing engineering, creativity, teamwork and problem-solving skills through designing and evaluating mechanical systems	

Summer 2		
LKS2	**Food and Nutrition**	
	Year 5	**Year 6**
	L5 – Which foods contain gluten and yeast? L6 – Is bread all the same? L7 – Why do bakers proof and bench? L8A – How do we bake bread? L8B – How do we bake bread?	L5 – Which foods contain gluten and yeast? L6 – Is bread all the same? L7 – Why do bakers proof and bench? L8A – How do we bake bread? L8B – How do we bake bread?
Key Concepts to assess	L5 – Children know that the Ancient Egyptians developed fermentation and can identify foods containing gluten and yeast. L6 – Children can explain how food processing changes the taste, appearance, texture and colour of bread. L7 – Children can explain why dough is proofed and benched and demonstrate safe food hygiene practices. L8A – Children can accurately weigh and measure ingredients to make bread safely. L8B – Children can evaluate their finished bread, explaining how ingredients and techniques affected the final product.	L5 – Children can explain the role of gluten and yeast in bread making and how fermentation affects the finished product. L6 – Children can investigate how changing ingredients affects the taste, texture, appearance and structure of bread. L7 – Children can independently apply hygiene, proofing and benching techniques while explaining why each stage is important. L8A – Children can accurately weigh, measure and prepare ingredients using appropriate equipment.

		L8B – Children can evaluate and refine a bread recipe by explaining how ingredient choices and baking techniques influence the finished product.
Vocabulary	gluten, yeast, fermentation, proofing, benching, knead, dough, recipe, ingredients, hygiene, weigh, measure, scales, measuring jug, bread	Y3+ activation, elasticity, texture, appearance, structure, rising, nutrition, food preparation, food safety, evaluate, recipe adaptation, craftsmanship
Experiences	Experiment with bread ingredients to investigate the effects of gluten, yeast and fermentation before baking a loaf. Evaluate both the completed shaduf and bread product against the original design brief, identifying improvements that would increase efficiency, function and quality	
SMSC	Social – Working collaboratively to prepare food safely, share equipment responsibly and evaluate finished products together. Cultural – Exploring the origins of bread making in Ancient Egypt and appreciating how food traditions have developed across different cultures. Moral – Understanding the importance of food hygiene, reducing food waste and making responsible choices when preparing food	
British Values	Individual Liberty – Making informed choices when adapting recipes and selecting ingredients. Mutual Respect – Respecting the opinions and preferences of others when tasting and evaluating bread. Tolerance – Appreciating that bread recipes, ingredients and baking traditions differ across cultures and communities.	
School Values	We are happy – Enjoying preparing, baking and evaluating bread inspired by Ancient Egyptian food technology. We are safe – Following food hygiene procedures and using kitchen equipment safely and responsibly. We enjoy a challenge – Developing confidence by learning new baking techniques and refining recipes. We celebrate diversity – Appreciating bread-making traditions from different cultures and recognising how food connects people around the world. We show respect – Respecting ingredients, equipment, shared workspaces and the opinions of others during food preparation. We are ready and fit for our future – Developing practical cooking skills, independence, resilience and healthy lifestyle habits that will support future life experiences.	

Spring 2		
UKS2	**Mechanisms (gears and pulleys)**	
	Year 5	**Year 6**
	L1A – How do pulleys lift a load? L1B – How do pulleys lift a load? L2A – What are gears and how do they work? L2B – What are gears and how do they work? L3A – Why is the design process in product innovation important? L3B – Why is the design process in product innovation important? L3C – Why is the design process in product innovation important? L3D – Why is the design process in product innovation important?	L1A – How do pulleys lift a load? L1B – How do pulleys lift a load? L2A – What are gears and how do they work? L2B – What are gears and how do they work? L3A – Why is the design process in product innovation important? L3B – Why is the design process in product innovation important? L3C – Why is the design process in product innovation important? L3D – Why is the design process in product innovation important?
Key Concepts to assess	L1A – Children know that fixed pulleys use a wheel, axle and rope to lift a load and can explain how changing the rope length affects movement. L1B – Children can compare fixed, moveable and compound pulleys and explain how each is used for different purposes. L2A – Children know that gears are rotating mechanical components that transfer movement and can explain how meshing gears alter direction and speed.	L1A – Children can explain how pulley systems provide mechanical advantage and justify when fixed, moveable or compound pulleys are most appropriate. L1B – Children can investigate and evaluate different pulley systems, explaining how changes improve efficiency and reduce effort. L2A – Children can confidently explain how gears transfer movement and use gear ratios to control speed, force and direction within mechanical systems.

	L2B – Children can calculate simple gear ratios and explain how gear ratio affects rotational speed and direction. L3A – Children know that James Dyson is a designer and engineer and can explain how research informs product innovation. L3B – Children can use surveys to identify the wants and needs of intended users and apply this information when designing a product. L3C – Children can use exploded diagrams and simple prototypes to communicate and test mechanical designs. L3D – Children can create and evaluate a functional product using gears and mechanical components, suggesting improvements based on testing.	L2B – Children can investigate coaxial gears and complex gear trains, explaining how engineers use them in everyday products. L3A – Children can analyse how James Dyson applies the design process to innovate products and use this understanding to develop their own ideas. L3B – Children can independently research user needs, interpret survey findings and produce detailed design specifications. L3C – Children can create accurate exploded diagrams and prototypes to test, refine and improve mechanical designs before manufacture. L3D – Children can independently design, manufacture, evaluate and refine a functional geared product, justifying improvements using evidence gathered through testing.
Vocabulary	pulley, fixed pulley, moveable pulley, compound pulley, load, effort, wheel, axle, rope, gear, gear train, gear ratio, coaxial gears, mechanism, movement, rotation, prototype, exploded diagram, survey, intended user, design brief, evaluate, James Dyson	Y5+ mechanical advantage, efficiency, transmission, rotational speed, engineering, innovation, specification, refinement, functionality, manufacturing, product analysis, iterative design
Experiences	Investigate a range of pulley systems to compare fixed, moveable and compound pulleys and measure how they reduce effort. Explore gears using construction kits to investigate gear ratios, direction of movement and mechanical advantage. Study the work of James Dyson, analysing how research, prototyping and testing contribute to innovative product design. Design, manufacture and evaluate a functional mechanical product incorporating gears, using prototypes and user feedback to refine the final design.	
SMSC	Social – Working collaboratively to solve engineering problems, test mechanisms and evaluate products respectfully. Cultural – Exploring how engineering innovations have improved everyday life and recognising the contribution of British designer James Dyson. Moral – Understanding the importance of designing safe, effective and sustainable products that meet users' needs.	
British Values	Individual Liberty – Making independent design decisions when developing, testing and refining mechanical products. Mutual Respect – Respecting the ideas and engineering solutions of others throughout the design process. Tolerance – Appreciating that engineering challenges can be solved in different ways through creativity and innovation.	
School Values	We are happy – Enjoying designing, building and testing mechanical products using pulleys and gears. We are safe – Using tools, construction equipment and mechanical components safely and responsibly. We enjoy a challenge – Developing resilience by testing, refining and improving products through iterative design. We celebrate diversity – Appreciating engineering achievements from different people and cultures and recognising how innovation improves lives. We show respect – Respecting equipment, shared resources and the ideas of others throughout the design and manufacturing process. We are ready and fit for our future – Developing engineering, creativity, critical thinking and problem-solving skills through designing, making and evaluating functional mechanical products.	

Medium Term

Cycle B

Autumn 2		
KS1	**Construction**	
	Year 1	**Year 2**
	L1 – How do architects create buildings? L2 – What is a net and how can we make one? L3 – How do we cut materials? L4 – How can we decide what joining materials to use? L5 – How do we cut and join a net? L6 – How can we as architects design a building? L7 – How can we as architects make a building? L8 – How can we as architects evaluate a design?	L1 – How do architects create buildings? L2 – What is a net and how can we make one? L3 – How do we cut materials? L4 – How can we decide what joining materials to use? L5 – How do we cut and join a net? L6 – How can we as architects design a building? L7 – How can we as architects make a building? L8 – How can we as architects evaluate a design?
Key Concepts to assess	L1 – Children know that a free-standing structure stands independently and that Sir Christopher Wren was an architect who designed important buildings. They can use simple 3D shapes to build a free-standing structure. L2 – Children know that architects use mock-ups and nets to test ideas and can build a simple free-standing structure using 2D shapes and nets. L3 – Children can use scissors safely to cut card and paper accurately and explain which materials are easier or harder to cut. L4 – Children know that different joining materials have different purposes and can select suitable joining methods for simple structures. L5 – Children can use a straight edge to mark cutting lines, follow a template to create a net and join it accurately. L6 – Children can design a simple model house by selecting appropriate construction and joining materials. L7 – Children can construct a model house by accurately cutting, folding and joining materials. L8 – Children can evaluate their model by explaining what worked well and suggesting one improvement.	L1 – Children can explain why free-standing structures need to be stable and describe how Sir Christopher Wren's buildings were designed to be strong and long-lasting. L2 – Children can use mock-ups and nets independently to test and refine ideas before constructing a final product. L3 – Children can accurately measure, mark and cut a range of materials, selecting the most appropriate for the task. L4 – Children can compare joining methods, selecting the most suitable based on strength, appearance and purpose, and use layering as an effective finishing technique. L5 – Children can independently construct accurate nets using templates, straight edges and careful cutting techniques. L6 – Children can produce a labelled design for a model house, selecting suitable materials and construction techniques to meet a design brief. L7 – Children can independently construct a stable model house using accurate cutting, folding and joining techniques. L8 – Children can evaluate their finished structure against the design brief, explaining how stability, construction methods and finishing techniques contributed to the final outcome and identifying improvements.
Vocabulary	free-standing structure, architect, building, structure, net, template, mock-up, design, model, join, fold, cut, scissors, straight edge, card, paper, glue, tape, stability, evaluate, Sir Christopher Wren	Y1+ prototype, design brief, construction, reinforcement, accuracy, measurement, finishing technique, layer, strengthen, refine, functionality
Experiences	Explore famous buildings designed by Sir Christopher Wren, identifying features that make structures strong and stable. Investigate a range of joining materials by testing which produce the strongest free-standing structures. Create and test paper and card nets before constructing a model house from a chosen design. Present completed houses in a class exhibition and evaluate how effectively each design met the original design brief.	
SMSC	Social – Working collaboratively to design, build and evaluate structures while sharing ideas and solving problems together. Cultural – Exploring the work of Sir Christopher Wren and recognising how architecture has shaped British history and communities	

	Moral – Understanding the importance of designing buildings that are safe, functional and fit for purpose.
British Values	Individual Liberty – Making independent design decisions when planning and constructing a model house. Mutual Respect – Respecting the ideas, designs and opinions of others throughout the design and evaluation process. Tolerance – Appreciating that there are different ways to solve the same design challenge.
School Values	We are happy – Enjoying designing, constructing and evaluating our own model buildings. We are safe – Using scissors, rulers, glue and other equipment safely and responsibly. We enjoy a challenge – Developing resilience by improving designs through testing and evaluation. We celebrate diversity – Appreciating different architectural styles and recognising that everyone can design creatively. We show respect – Respecting equipment, shared resources and the ideas of others throughout the design process. We are ready and fit for our future – Developing creativity, problem-solving, teamwork and construction skills through designing and making stable structures.

Spring 2		
KS1	**Textiles** **Cooking and Nutrition**	
	Year 1	**Year 2**
	L1A – How can we make a textile product? L1B – How can we make a textile product? L1C – How can we make a textile product? L1D – How can I make a textile product? L2A – How can we eat healthily? L2B – How can we eat healthily? L3A – What is Mexican food like? L3B – What is Mexican food like?	L1A – How can we make a textile product? L1B – How can we make a textile product? L1C – How can we make a textile product? L1D – How can I make a textile product? L2A – How can we eat healthily? L2B – How can we eat healthily? L3A – What is Mexican food like? L3B – What is Mexican food like?
Key Concepts to assess	L1A – Children know what a textile is and can identify suitable fabrics and joining methods for a simple textile product. L1B – Children can use design vocabulary to plan a textile product and use templates, pins and scissors safely to prepare fabric. L1C – Children can sew using overstitch with increasing control to join pieces of fabric. L1D – Children can evaluate their finished textile product by commenting on how well it has been joined and decorated. L2A – Children know that different food groups make up a healthy diet and can sort foods according to where they come from. L2B – Children can use a knife safely to peel fruit and vegetables with support. L3A – Children know that different cultures enjoy different foods and can identify foods commonly eaten in Mexico.	L1A – Children can explain the purpose of different textiles, linings and joining methods, selecting appropriate materials for a design. L1B – Children can accurately use templates, pins, scissors and fabric to prepare pieces for construction while following a design. L1C – Children can independently use overstitch to join fabric securely and neatly. L1D – Children can evaluate their finished textile product against the design brief, explaining how joining methods and aesthetic choices have improved the final outcome. L2A – Children can explain why a balanced diet contains foods from different food groups and classify foods by where they are produced. L2B – Children can independently use a knife safely to peel and prepare fruit and vegetables.

	L3B – Children can safely use a knife, grater and measuring spoon to prepare simple Mexican-inspired food while following good hygiene routines.	L3A – Children can explain how Mexican food reflects the country's culture and ingredients. L3B – Children can independently prepare a simple Mexican-inspired dish by using a knife, grater and measuring spoon safely, following hygienic food preparation procedures, before evaluating the finished product.
Vocabulary	textile, fabric, template, pin, overstitch, lining, needle, thread, join, decorate, mock-up, design, evaluate healthy diet, food groups, fruit, vegetables, farmed, grown, caught, ingredients, hygiene, knife, grater, measuring spoon, peel, prepare, Mexican food	Y1+ seam, prototype, aesthetics, craftsmanship, precision, reinforce, construction, functionality, refine Y1+ nutrition, balanced diet, recipe, safety, evaluate, texture, flavour, preparation, culture, ingredients
Experiences	Investigate a range of textiles to compare their suitability for different products. Practise using templates, pins and overstitch before creating a Mexican-inspired textile product. Explore colourful Mexican patterns and textiles to inspire decorative designs. Evaluate completed products against the original design brief and suggest improvements. Sort foods according to whether they are farmed, grown or caught. Taste a range of traditional Mexican foods and discuss flavours, textures and ingredients. Prepare a simple Mexican-inspired recipe using safe food preparation techniques. Evaluate the finished dish by discussing taste, texture, appearance and healthy food choices.	
SMSC	Social – Working collaboratively to develop sewing skills and evaluate textile products respectfully. Cultural – Exploring traditional Mexican textiles and recognising how fabrics and patterns reflect culture and identity. Moral – Understanding the importance of reducing waste by using materials carefully and responsibly. Social – Working collaboratively to prepare food safely and evaluate dishes together. Cultural – Exploring traditional Mexican foods and understanding how food reflects culture and heritage. Moral – Understanding the importance of healthy eating, food hygiene and reducing food waste.	
British Values	Individual Liberty – Making independent choices when selecting fabrics, colours and decorative features. Mutual Respect – Respecting the creativity and ideas of others throughout the design process. Tolerance – Appreciating that textile traditions and decorative styles vary across cultures. Individual Liberty – Making informed choices about healthy eating and selecting ingredients independently. Mutual Respect – Respecting the food preferences and opinions of others. Tolerance – Appreciating that different cultures enjoy different foods and traditions.	
School Values	We are happy – Enjoying creating colourful textile products inspired by Mexican culture. We are safe – Using needles, pins, scissors and fabric safely and responsibly. We enjoy a challenge – Developing confidence by learning new sewing techniques. We celebrate diversity – Appreciating textiles and decorative traditions from different cultures. We show respect – Respecting equipment, materials and the work of others. We are ready and fit for our future – Developing creativity, resilience and practical sewing skills.	

	We are happy – Enjoying preparing and tasting Mexican-inspired dishes. We are safe – Following food hygiene procedures and using kitchen equipment safely. We enjoy a challenge – Developing confidence by trying new foods and cooking techniques. We celebrate diversity – Appreciating foods and recipes from different cultures. We show respect – Respecting ingredients, equipment and the opinions of others. We are ready and fit for our future – Developing practical cooking skills, healthy lifestyles and independence through food preparation.

Autumn 1		
LKS2	**Construction Computer Aided Design**	
	Year 3	**Year 4**
	L1 – What are shell structures? L2A – How can shell structures be joined? L2B – How can shell structures be joined? L3 – What are lamination, corrugation and ribbing? L4A – How can we create a Viking longboat for my intended audience? L4B – How can we create a Viking longboat for my intended audience?	L1 – What are shell structures? L2A – How can shell structures be joined? L2B – How can shell structures be joined? L3 – What are lamination, corrugation and ribbing? L4A – How can we create a Viking longboat for my intended audience? L4B – How can we create a Viking longboat for my intended audience?
Key Concepts to assess	L1 – Children know that a shell structure has a hollow inside with a solid outer layer and can evaluate the strengths and limitations of existing shell structures. L2A – Children know where joining flaps should be placed on a net and can accurately score and fold flaps ready for joining. L2B – Children can draw hidden joining flaps accurately so they are not visible on the finished product and explain why this improves the design. L3 – Children know that Robert Gair designed the folding carton and can strengthen shell structures using lamination, corrugation and ribbing. L4A – Children can apply their knowledge of shell structures, joining techniques and CAD to design a Viking longboat that meets a design brief. L4B – Children can construct and evaluate a Viking longboat, using subject-specific vocabulary to compare and improve their design.	L1 – Children can explain how shell structures achieve strength through their shape and evaluate packaging designs by considering stability, strength and construction. L2A – Children can accurately design nets with hidden joining flaps, using scoring techniques to improve the quality and appearance of the finished product. L2B – Children can independently select and apply the most appropriate joining techniques to create a strong shell structure. L3 – Children can explain how lamination, corrugation and ribbing strengthen structures and use CAD to refine and evaluate shell structure designs. L4A – Children can produce detailed CAD designs for a Viking longboat, applying construction techniques that meet the needs of the intended user. L4B – Children can independently construct, evaluate and refine a Viking longboat, justifying improvements using subject-specific technical vocabulary.
Vocabulary	shell structure, net, joining flap, score, fold, tab, shell, CAD, lamination, corrugation, ribbing, reinforce, prototype, design brief, evaluate, Robert Gair	Y3+ structural strength, construction, reinforcement, precision, functionality, stability, engineering, refinement, packaging, manufacture, aesthetics
Experiences	Investigate a range of packaging and shell structures to identify how they are constructed and strengthened. Explore the work of Robert Gair and discover how the invention of the folding carton changed packaging design. Use CAD software to create and refine a net for a Viking longboat before constructing the final product. Test completed Viking longboats for strength and stability before evaluating them against the original design brief.	
SMSC	Social – Working collaboratively to solve construction challenges, share design ideas and evaluate products respectfully. Cultural – Exploring Viking longboats and understanding how design and engineering supported Viking exploration and trade.	

	Moral – Understanding the importance of designing strong, functional products while using materials responsibly.
British Values	Individual Liberty – Making independent design decisions when planning and constructing a Viking longboat. Mutual Respect – Respecting the ideas, designs and opinions of others throughout the design and evaluation process. Tolerance – Appreciating that there are different ways to solve the same engineering challenge.
School Values	We are happy – Enjoying designing, constructing and testing Viking longboats. We are safe – Using scissors, rulers and construction materials safely and responsibly. We enjoy a challenge – Developing resilience by testing, strengthening and refining shell structures. We celebrate diversity – Appreciating engineering ideas from different cultures and historical periods. We show respect – Respecting equipment, shared resources and the creative ideas of others. We are ready and fit for our future – Developing creativity, engineering, teamwork and problem-solving skills through designing, making and evaluating functional structures.

Summer 1		
LKS2	**Construction**	
	Year 3	**Year 4**
	L1A – What sewing skills can we use? L1B – What sewing skills can we use? L1C – What sewing skills can we use? L2 – What is a hem? L3 – What are gathers and knife pleats? L4A – How can we use our skills to create a textile? L4B – How can we use our skills to create a textile?	L1A – What sewing skills can we use? L1B – What sewing skills can we use? L1C – What sewing skills can we use? L2 – What is a hem? L3 – What are gathers and knife pleats? L4A – How can we use our skills to create a textile? L4B – How can we use our skills to create a textile?
Key Concepts to assess	L1A – Children know that Ozwald Boateng is a British fashion designer and can explain how designers influence clothing and textile products. L1B – Children can thread a needle and use running stitch, back stitch and catch stitch with increasing accuracy. L1C – Children can compare different stitches and explain the strengths and limitations of each as joining techniques. L2 – Children know that a hem should be hidden and can create a simple hem using a prototype before applying it to a textile. L3 – Children can create gathers and knife pleats using prototypes and explain how folding fabric changes its appearance and function. L4A – Children can apply sewing techniques to produce annotated sketches that meet a simple design brief, using accurate measurements to create a template. L4B – Children can use stitching, hems and fabric-folding techniques to create a finished textile product and evaluate how well it meets the design brief.	L1A – Children can explain how Ozwald Boateng combines creativity, craftsmanship and precision within his textile designs and apply these ideas to their own work. L1B – Children can confidently thread a needle and accurately use running stitch, back stitch and catch stitch for different purposes. L1C – Children can justify the choice of different stitching techniques by explaining their suitability for strength, appearance and function. L2 – Children can independently create accurate hidden hems using prototypes to improve the quality and finish of a textile product. L3 – Children can confidently create gathers and knife pleats, using mock-ups and prototypes to refine techniques before producing a final product. L4A – Children can produce detailed annotated designs using accurate measurements and scale to meet a design brief. L4B – Children can independently construct, evaluate and refine a textile product, explaining how sewing techniques, hems and fabric manipulation contribute to the effectiveness of the finished design.

Vocabulary	textile, fabric, thread, needle, running stitch, back stitch, catch stitch, hem, hidden hem, gather, knife pleat, prototype, mock-up, template, pin, stitch, design brief, annotate, evaluate, Ozwald Boateng	Y3+ seam allowance, craftsmanship, precision, reinforcement, annotation, scale, measurement, construction, refinement, functionality, aesthetics, fraying
Experiences	Explore the work of Ozwald Boateng, discussing how colour, pattern and precision influence textile design. Practise threading needles and using running stitch, back stitch and catch stitch on fabric samples before comparing their strengths. Create prototypes of hems, gathers and knife pleats before applying these techniques to a final Mayan-inspired textile product. Present finished textile products in a class exhibition, evaluating how effectively sewing techniques, fabric manipulation and design choices have met the original design brief.	
SMSC	Social – Working collaboratively to develop sewing skills, solve practical problems and evaluate textile products respectfully. Cultural – Exploring Mayan textile traditions alongside the contemporary work of Ozwald Boateng and recognising how textiles reflect culture and identity. Moral – Understanding the importance of reducing waste by planning carefully and using materials responsibly.	
British Values	Individual Liberty – Making independent design decisions when selecting fabrics, sewing techniques and decorative features. Mutual Respect – Respecting the ideas, creativity and finished work of others throughout practical activities and evaluation. Tolerance – Appreciating that textile traditions and clothing designs differ across cultures and throughout history.	
School Values	We are happy – Enjoying developing sewing skills and creating high-quality textile products inspired by Mayan culture. We are safe – Using needles, scissors, pins and other sewing equipment safely and responsibly. We enjoy a challenge – Developing resilience by refining sewing techniques and improving products through testing and evaluation. We celebrate diversity – Appreciating textile traditions and fashion influences from different cultures around the world. We show respect – Respecting equipment, materials and the ideas of others throughout the design process. We are ready and fit for our future – Developing creativity, precision, resilience and practical life skills through designing and making textile products.	

Summer 2		
LKS2	**Construction**	
	Year 3	**Year 4**
	L1 – How can a wooden frame be strengthened? L2A – Why are prototypes useful for designers? L2B – Why are prototypes useful for designers? L3 – What different joints combine to make a product? L4 – How can we cut wood safely and accurately? L5 – How can we make a bug hotel?	L1 – How can a wooden frame be strengthened? L2A – Why are prototypes useful for designers? L2B – Why are prototypes useful for designers? L3 – What different joints combine to make a product? L4 – How can we cut wood safely and accurately? L5 – How can we make a bug hotel?
Key Concepts to assess	L1 – Children know how wooden frames can be strengthened using simple reinforcing techniques and can annotate sketches to show their ideas. L2A – Children know what diagonal braces and butt joints are and can use prototypes to test how these techniques strengthen a frame. L2B – Children know how gussets and braces improve stability and can compare prototypes using appropriate subject-specific vocabulary. L3 – Children can apply reinforcing techniques to meet a simple design brief and select suitable materials for strengthening corners of wooden frames.	L1 – Children can explain how wooden frames are strengthened and supported, justifying the use of reinforcement techniques within a design. L2A – Children can independently create and evaluate prototypes, explaining how diagonal braces, butt joints and gussets improve structural strength. L2B – Children can use prototypes to refine designs before manufacture, selecting the most appropriate reinforcement techniques for the intended purpose. L3 – Children can confidently apply a range of joints and reinforcing techniques, explaining why different materials are suitable for strengthening wooden structures.

	L4 – Children can measure wood accurately and use a saw safely with support to prepare materials for construction. L5 – Children can construct and evaluate a bug hotel using strong joints and reinforcement techniques, explaining how their design supports stability and provides suitable habitats for insects.	L4 – Children can accurately measure and safely cut wood independently, selecting the most appropriate tools and techniques for the task. L5 – Children can independently design, construct and evaluate a bug hotel that meets a design brief, justifying how reinforcement techniques, accurate construction and material choices improve the final product.
Vocabulary	frame, structure, reinforcement, stability, support, prototype, butt joint, diagonal brace, gusset, corner joint, measure, saw, timber, construct, design brief, evaluate	Y3+ structural integrity, precision, engineering, framework, durability, craftsmanship, functionality, manufacture, refinement, prototype testing, strengthening
Experiences	Investigate how wooden frames can be strengthened by testing butt joints, diagonal braces and gussets. Build and compare prototypes to identify the most effective reinforcement techniques before beginning the final product. Practise measuring and sawing wood accurately before constructing a bug hotel using appropriate joints and reinforcing methods. Install completed bug hotels within the school grounds and evaluate how effectively they provide habitats while meeting the original design brief.	
SMSC	Social – Working collaboratively to solve construction challenges, share practical skills and evaluate structures respectfully. Cultural – Exploring how habitats can be created to support wildlife and recognising the role people play in caring for the local environment. Moral – Understanding the importance of protecting biodiversity by creating safe habitats for insects and using materials responsibly.	
British Values	Individual Liberty – Making independent design decisions when selecting reinforcement techniques and construction methods. Mutual Respect – Respecting the ideas, practical skills and opinions of others throughout the design and construction process. Tolerance – Appreciating that there are different ways to solve the same engineering challenge.	
School Values	We are happy – Enjoying designing, building and installing bug hotels to support wildlife. We are safe – Using saws, measuring equipment and construction materials safely and responsibly. We enjoy a challenge – Developing resilience by refining prototypes and improving structural designs. We celebrate diversity – Appreciating the importance of biodiversity and recognising the different habitats needed by living things. We show respect – Respecting equipment, shared resources, wildlife and the ideas of others throughout the project. We are ready and fit for our future – Developing engineering, teamwork, practical construction and environmental stewardship skills through designing and making purposeful structures.	

Spring		
UKS2	**Electrical Systems**	
	Year 5	**Year 6**
	L1 – How do changes in technology affect society? L2 – How can computers make something move? L3 – What adaptations need to be made to a circuit to enable it to be accessible to all? L4 – How can circuit designs affect output and functionality? L5 – What processes do we need to go through when making effective designs?	L1 – How do changes in technology affect society? L2 – How can computers make something move? L3 – What adaptations need to be made to a circuit to enable it to be accessible to all? L4 – How can circuit designs affect output and functionality? L5 – What processes do we need to go through when making effective designs?
Key Concepts to assess	L1 – Children know that Sir Tim Berners-Lee invented the World Wide Web and can explain how developments in Design and Technology have changed everyday life.	L1 – Children can evaluate how technological developments, including the invention of the World Wide Web, have transformed communication and everyday life, explaining the wider impact of Design and Technology on society.

	L2 – Children can use a computer control program to enable an electrical product to respond automatically to changes in the environment. L3 – Children can apply their knowledge of electrical systems to design a circuit for a product that meets the needs of an intended user. L4 – Children can evaluate the functionality of an electrical circuit and suggest improvements to increase effectiveness and reliability. L5 – Children can create scaled diagrams and annotated designs that communicate how an electrical product will function before it is made.	L2 – Children can independently use computer control programs to automate electrical products, explaining how inputs, outputs and sensors improve functionality. L3 – Children can design and adapt electrical systems that improve accessibility, justifying design decisions based on the needs of different users. L4 – Children can independently test, evaluate and refine electrical circuits, explaining how modifications improve performance, functionality and reliability. L5 – Children can produce detailed scaled drawings, annotated circuit diagrams and prototypes before constructing and evaluating an effective electronic product.
Vocabulary	electrical system, circuit, component, input, output, sensor, control program, computer control, automation, accessibility, functionality, design specification, prototype, annotated diagram, scale drawing, evaluate, Sir Tim Berners-Lee	Y5+ microcontroller, programming, algorithm, interface, innovation, reliability, refinement, user-centred design, technological development, engineering, iterative design, product specification
Experiences	Explore the work of Sir Tim Berners-Lee and investigate how technological innovations have transformed everyday life. Use computer control software to programme an electrical output to respond automatically to environmental changes. Design and build an accessible alarm system using electrical components, programming and user-centred design principles. Test, evaluate and refine the finished product, using feedback and testing results to improve functionality and accessibility.	
SMSC	Social – Working collaboratively to solve engineering problems, develop computer-controlled systems and evaluate products respectfully. Cultural – Exploring how technological innovation has transformed communication, accessibility and everyday life across the world. Moral – Understanding the responsibility of designers and engineers to create products that are safe, inclusive and accessible for everyone.	
British Values	Individual Liberty – Making independent design decisions when programming and developing an accessible electronic product. Mutual Respect – Respecting the ideas and design solutions of others during collaborative problem-solving and evaluation. Tolerance – Appreciating that technology should meet the needs of a diverse range of users and that different design solutions can be equally effective.	
School Values	We are happy – Enjoying designing, programming and testing innovative electronic products. We are safe – Using electrical components, tools and computer equipment safely and responsibly. We enjoy a challenge – Developing resilience by debugging programs, testing circuits and refining designs. We celebrate diversity – Designing products that are inclusive and accessible while appreciating how technology improves the lives of different people. We show respect – Respecting equipment, shared resources and the ideas of others throughout the design and evaluation process. We are ready and fit for our future – Developing engineering, digital, programming, creativity and problem-solving skills that prepare us for future technological careers and everyday life.	

Summer 2		
UKS2	**Cooking and Nutrition**	
	Year 5	**Year 6**
	L1 – How does seasonality affect our food choices? L2 – Why do we source our food from so many different countries? L3A – How does nutritional content affect our food choices?	L1 – How does seasonality affect our food choices? L2 – Why do we source our food from so many different countries? L3A – How does nutritional content affect our food choices?

	L3B – How does nutritional content affect our food choices? L4 – Where do our eggs come from? L5 – How can we adapt recipes to suit our lifestyle? L6A – How can we safely prepare a nutritious meal? L6B – How can we safely prepare a nutritious meal?	L3B – How does nutritional content affect our food choices? L4 – Where do our eggs come from? L5 – How can we adapt recipes to suit our lifestyle? L6A – How can we safely prepare a nutritious meal? L6B – How can we safely prepare a nutritious meal?
Key Concepts to assess	L1 – Children know that food is grown, reared and caught in the UK, Europe and the wider world and can explain how seasonality affects food availability. They know that Rachel Green promotes seasonal food production. L2 – Children can explain why foods are imported from different countries and describe how global food sourcing provides variety throughout the year. L3A – Children can use their knowledge of a healthy, varied diet to plan balanced meals for different lifestyles. L3B – Children can compare foods based on cost, convenience, nutritional value and taste, explaining how these factors influence food choices. L4 – Children know the difference between cage-reared and free-range eggs and can explain how food production methods influence consumer choice. L5 – Children can adapt recipes using their knowledge of cooking, nutrition and seasonality and accurately scale recipes up or down. L6A – Children know what cross-contamination is and can prepare savoury dishes safely by maintaining high standards of food hygiene and using heat sources appropriately. L6B – Children can safely peel, chop, dice and slice ingredients, remove bones from cooked fish and evaluate the nutritional quality of a finished meal.	L1 – Children can evaluate how seasonality affects sustainability, food miles and consumer choices, explaining why seasonal produce is important. L2 – Children can explain how global food production and international trade influence the availability of foods in the UK, evaluating the advantages and disadvantages of importing food. L3A – Children can independently plan nutritious meals for different dietary requirements using their understanding of nutrition and healthy eating. L3B – Children can critically compare foods by analysing nutritional content, cost, sustainability, convenience and taste before justifying food choices. L4 – Children can explain how farming methods, including cage-reared and free-range systems, influence food quality, animal welfare and consumer decisions. L5 – Children can independently adapt recipes to suit different lifestyles, dietary requirements and portion sizes while maintaining nutritional balance. L6A – Children can confidently prepare and cook a nutritious savoury meal by applying excellent food hygiene, preventing cross-contamination and using heat sources safely. L6B – Children can evaluate the finished dish against nutritional guidelines, explaining how preparation methods, ingredient choices and presentation contribute to the final product.
Vocabulary	seasonality, seasonal food, ingredients, nutrition, healthy diet, balanced diet, recipe, adapt, scale, portion, food miles, import, export, sustainability, free-range, cage-reared, hygiene, cross-contamination, savoury, heat source, consumer, Rachel Green	Y5+ dietary requirements, nutritional value, convenience, sustainability, ethical farming, traceability, food provenance, food production, portion control, preparation, evaluation, consumer choice
Experiences	Investigate seasonal foods by comparing produce available at different times of the year and discussing how this affects meal planning. Explore where foods are grown, reared and caught, tracing ingredients used in South American dishes back to their country of origin. Adapt an existing recipe to suit different dietary requirements, lifestyles or portion sizes before preparing the final dish. Prepare, cook and evaluate a nutritious South American-inspired savoury meal, applying safe food preparation techniques and reflecting on nutritional value, taste and presentation.	
SMSC	Social – Working collaboratively to prepare food safely, share responsibilities and evaluate dishes respectfully. Cultural – Exploring South American cuisine and understanding how climate, geography and culture influence food traditions around the world. Moral – Understanding the importance of healthy eating, sustainable food choices, animal welfare and reducing food waste.	
British Values	Individual Liberty – Making informed choices about ingredients, healthy eating and adapting recipes to meet different dietary needs. Mutual Respect – Respecting the food preferences, opinions and cultural traditions of others during food preparation and evaluation. Tolerance – Appreciating that diets, recipes and food traditions differ between cultures and communities.	
School Values	We are happy – Enjoying preparing, cooking and tasting nutritious meals inspired by South American cuisine.	

	We are safe – Following food hygiene procedures and using knives, heat sources and kitchen equipment safely and responsibly. We enjoy a challenge – Developing confidence by adapting recipes, trying new ingredients and refining cooking techniques. We celebrate diversity – Appreciating food traditions from South America and recognising how culture influences what people eat. We show respect – Respecting ingredients, equipment, shared workspaces and the opinions of others during food preparation. We are ready and fit for our future – Developing practical cooking skills, healthy lifestyle choices, independence and confidence that will support future life experiences.