The Riverview Academy
Curriculum Progression : Design and Technology

EXCELLENCE AND AMBITION FOR ALL

Respect Excellence Resilience Teamwork Kindness Responsibility

Whole School: Riverview Curriculum Intent

At The Riverview Academy, our values are at the heart of everything we do. We are a kind, inclusive community that embraces individuality and creates opportunities for all, irrespective of gender, race, disability or background. Through excellent education in a safe and nurturing environment, we empower every child to become the very best version of themselves. Guided by kindness, excellence, respect, resilience and teamwork, our children grow into confident, creative learners who make a positive difference to our school, our community, and the wider world.

Design & Technology: Riverview Curriculum Intent

At The Riverview Academy, our Design and Technology curriculum is designed to inspire creativity, curiosity and innovation, enabling all pupils to design and make purposeful products that respond to real needs and opportunities. Pupils are encouraged to think practically, solve problems, take risks and develop confidence in turning their ideas into successful outcomes.

From the Early Years, children explore how things work through purposeful play, construction and making, developing early skills in choosing materials, joining, building and evaluating their creations. These foundations are built upon in Key Stage 1, where pupils design, make and evaluate purposeful products, developing their technical knowledge and beginning to select appropriate tools, materials and techniques.

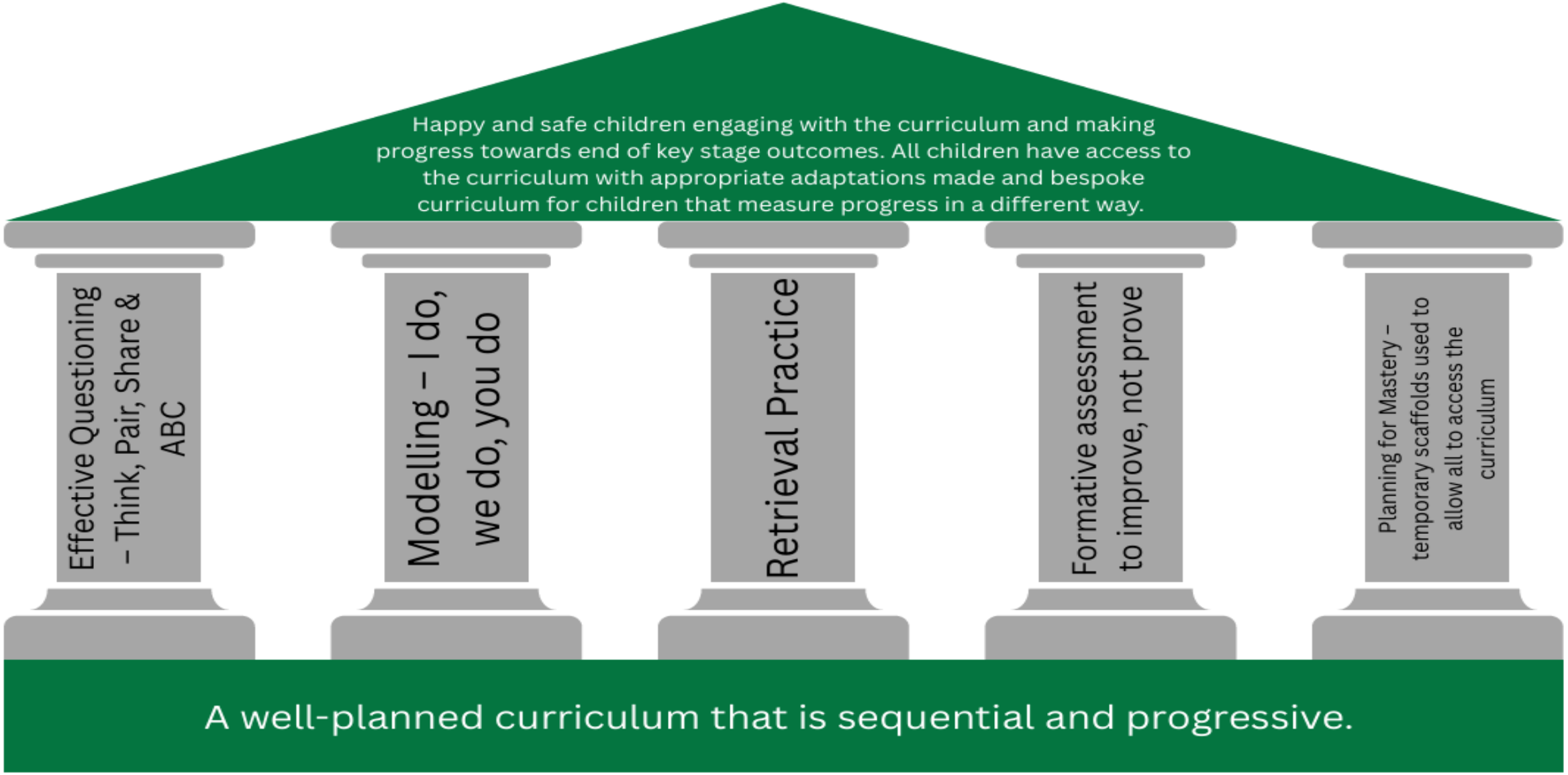
As pupils move into Key Stage 2, they tackle increasingly complex design problems, drawing on research and considering purpose, function and the needs of the user. Pupils develop greater accuracy and independence when selecting tools, materials and processes, while building their technical knowledge of structures, mechanisms, electrical systems, textiles and food.

Across all stages, pupils follow an iterative process of designing, making, testing and evaluating, learning that successful design involves creativity, problem-solving and continual improvement. By the time pupils leave The Riverview Academy, they will have the knowledge, skills and confidence to design innovative solutions, make purposeful products and understand how design and technology shapes the world around them.

Our Five Pedagogical Pillars

At Riverview, our approach to teaching and learning is grounded in five key pedagogical pillars, all underpinned by a well-planned curriculum that is sequential and progressive. These pillars work together to ensure that every child is supported to access the curriculum, make progress, and thrive. Where needed, bespoke adaptations and provision are made to ensure every child can succeed. This framework ensures we are consistent, inclusive, and ambitious in our approach to teaching and learning across the school. The 5 pillars are:

Effective Questioning: *We use strategies such as Think-Pair-Share and ABC (Agree, Build, Challenge) to promote deep thinking, discussion, and engagement.*	**Modelling:** *Lessons are built around the I do, we do, you do approach to provide clear scaffolding and build independence.*	**Retrieval Practice:** *Children regularly recall prior learning to strengthen memory, make connections, and deepen understanding.*	**Formative Assessment:** *Assessment is used to improve, not prove learning. Teachers adapt teaching responsively based on what children know and need next.*	**Planning for Mastery:** *We use temporary scaffolds and supports to enable all learners to access the curriculum and achieve success.*


Happy and safe children engaging with the curriculum and making progress towards end of key stage outcomes. All children have access to the curriculum with appropriate adaptations made and bespoke curriculum for children that measure progress in a different way.
Effective Questioning – Think, Pair, Share & ABC
Modelling – I do, we do, you do
Retrieval Practice
Formative assessment to improve, not prove
Planning for Mastery – temporary scaffolds used to allow all to access the curriculum
A well-planned curriculum that is sequential and progressive.

Substantive and Disciplinary Concepts

Substantive Concepts:



Mechanisms



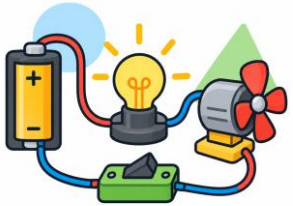
Construction



Textiles



Cooking and Nutrition



Electrical Systems

Disciplinary Concepts:



Investigating



Designing



Making



Testing



Evaluating



Refining

Substantive and Disciplinary Knowledge

Substantive Knowledge – Knowing Design & Technology

Substantive knowledge refers to the **content of Design & Technology** – the materials, components, systems, processes and technical knowledge that pupils learn about. It includes:

- **Cooking & Nutrition** – understanding food, nutrition, ingredients, seasonality and the techniques and processes involved in preparing and cooking food.
- **Textiles** – understanding different fabrics and their properties, including techniques for shaping, joining and finishing textiles to create functional products.
- **Construction** – understanding materials, structures and joining techniques, including how products can be strengthened, stiffened and made stable.
- **Mechanisms** – understanding how movement is created, transferred and controlled through mechanisms and mechanical systems, including levers, sliders, wheels, axles, gears, pulleys and cams.
- **Electrical Systems** – understanding circuits, switches and electrical components and how these can be incorporated into functional products and controlled systems.

This is the *'know what'* of Design & Technology – the building blocks that allow pupils to understand how products work, make informed choices about materials and components, and apply technical knowledge when designing and making purposeful products. Substantive knowledge is carefully sequenced so that pupils revisit and deepen their understanding of key concepts as they progress through the school.

Disciplinary Knowledge – Thinking Like a Designer

Disciplinary knowledge teaches pupils **how designers work**, think, solve problems and make decisions. It focuses on understanding Design & Technology as an iterative process in which ideas are investigated, developed, made, tested and improved to meet a particular purpose and user need.

Through disciplinary knowledge, pupils learn to:

- **Investigate** – explore existing products, identify how they work and consider the needs and preferences of users
- **Design** – generate, develop and communicate ideas that respond to a purpose, user and clear design criteria
- **Make** – select and use appropriate tools, materials, components and techniques with increasing accuracy and control
- **Test** – check how well products function and determine whether they meet their intended purpose and design criteria
- **Evaluate** – judge the effectiveness of products, identifying strengths and weaknesses and using evidence to inform improvements
- **Refine** – adapt and improve designs and products in response to testing, evaluation and feedback

This is the *'know how'* of Design & Technology – the habits of mind that enable pupils to think creatively, solve problems, make informed decisions and continually improve their designs and products through an iterative process.



In EYFS, pupils explore movement through play and construction, noticing how objects can move, turn, slide and roll. In KS1, they begin to understand and use simple mechanisms such as sliders, levers, wheels and axles within purposeful products. In KS2, pupils develop their understanding of more complex mechanical systems, including gears, pulleys and cams, applying these deliberately to control movement and create functional outcomes.



In EYFS, pupils explore building and construction through play, experimenting with different materials, shapes and ways of joining components. In KS1, they begin to design and make simple structures, developing an understanding of strength, stability and joining techniques. In KS2, pupils apply their knowledge of structures with increasing accuracy, selecting appropriate materials and using techniques such as strengthening, stiffening and reinforcing to create stable, functional products.



In EYFS, pupils explore fabrics and flexible materials through play and making, noticing differences in texture, shape and how materials can be joined. In KS1, they begin to select and join textiles using simple techniques, including cutting, stitching and using templates. In KS2, pupils develop greater accuracy and control, using patterns, seams and increasingly complex joining and finishing techniques to create functional textile products.



In EYFS, pupils explore how everyday objects and devices work, noticing that some require electricity to operate. In KS1, they begin to explore simple electrical components and understand how they can be used within purposeful products. In KS2, pupils develop their understanding of electrical systems, constructing circuits with components such as switches, bulbs, buzzers and motors and applying this knowledge to design and create functional products.



In EYFS, pupils explore a range of foods through practical experiences, developing awareness of ingredients, healthy choices and simple food preparation. In KS1, they begin to understand where food comes from, the importance of a varied diet and how to prepare ingredients safely and hygienically. In KS2, pupils deepen their understanding of nutrition, seasonality and food provenance, applying a wider range of preparation and cooking techniques to create healthy, purposeful dishes.



In EYFS, pupils explore objects and products through play, noticing how they work, what they are made from and what they are used for. In KS1, they investigate existing products, considering their materials, construction, purpose and intended user. In KS2, pupils investigate a wider range of products in greater depth, analysing how their function, materials and design features meet the needs of different users and contexts.



In EYFS, pupils explore whether their creations work as they intended, making simple changes when needed. In KS1, they begin to test how well their products work and whether they meet their intended purpose. In KS2, pupils test products systematically against their design criteria, considering function, user needs and performance and using their findings to identify necessary improvements.



In EYFS, pupils develop and communicate ideas through talk, drawing, modelling and construction. In KS1, they begin to design purposeful products for themselves and others, communicating ideas through drawings, templates and simple models. In KS2, pupils develop increasingly detailed designs based on research, user needs and clear design criteria, communicating and adapting their ideas using annotated sketches, prototypes and models.



In EYFS, pupils talk about what they have made, sharing what they like and what they might change. In KS1, they evaluate their products against their original ideas and purpose, identifying strengths and possible improvements. In KS2, pupils evaluate products critically against design criteria and user needs, using evidence from testing and feedback to judge effectiveness and inform future decisions.



In EYFS, pupils select and use a range of tools and materials to make their ideas, developing increasing control and confidence. In KS1, they select appropriate tools, materials and components and use a range of practical techniques to make purposeful products. In KS2, pupils make with increasing accuracy and independence, selecting appropriate tools, materials, components and processes to produce functional, well-finished products.



In EYFS, pupils adapt their creations as they make, trying different materials, arrangements and approaches when something does not work. In KS1, they begin to make purposeful changes to their designs and products in response to testing and evaluation. In KS2, pupils refine designs iteratively, using testing, evaluation and feedback to modify materials, components, techniques and construction in order to improve the quality and effectiveness of the final product.

What is the Art Curriculum?

	Autumn Term	Spring Term	Summer Term
EYFS	Expressive Arts and Design		
Year 1	Shaddow Puppets	Growing a Salad	Junk Modelling Castles
Year 2	Simple Circuit Lamp	Design and Create a Habitat	Using Joints to Make Dinosaurs
Year 3	Iron Age Feast	Personal Photo Frames	Anglo Saxon Brooches
Year 4	Sewing Cushions	Bridge Building	Roman Chariots
Year 5	Wooden Mazes	Water Mills	Ocean Grabbers
Year 6	Make Do and Mend	Fair Trade CAD	Fair Trade Chocolate Making

How our units of work are mapped out:

Our units are designed to progressively develop design knowledge, practical skills and technical understanding, while also deepening pupils' creative thinking and problem-solving. Knowledge and skills are revisited and interwoven so children can return to materials, components, mechanisms and processes throughout their progression at our school, applying prior learning to increasingly complex design challenges and creating purposeful, functional products for different users and contexts.

The substantive concepts outlined below occur frequently throughout the Design & Technology curriculum. Pupils develop their understanding through carefully planned, repeated encounters across cooking and nutrition, textiles, construction, mechanisms and electrical systems. These substantive concepts become increasingly complex as pupils apply their knowledge to different products, purposes and contexts. Mechanisms, for example, progress from simple sliders and levers to more complex systems involving gears, pulleys and cams. Simply knowing how a material, component or mechanism works does not enable pupils to design effectively; they must understand how and why technical knowledge can be applied to create purposeful, functional products



Mechanisms



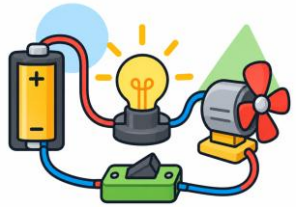
Construction



Textiles



Cooking and Nutrition

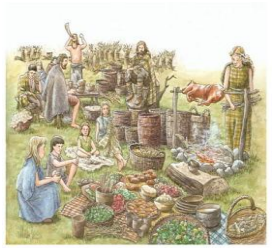


Electrical Systems

R	1	2	3	4	5	6

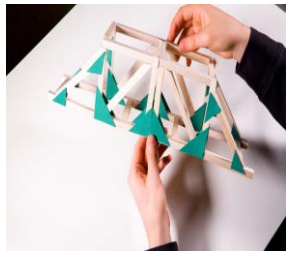
Expressive Arts and Design.
Talk about their own ideas, choices and experiences when designing and making using a range of materials and resources;
Explore how different materials, tools and joining techniques can be used, noticing similarities, differences and how things work;
Develop and adapt ideas through construction, modelling, textiles and food experiences, creating purposeful outcomes from their imagination and experiences.

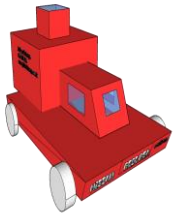
















Cultural Capital and Enrichment

Where did the term cultural capital come from?

In the 1970s, Pierre Bourdieu, a French sociologist, developed the idea of cultural capital as a way to explain how power in society was transferred and social classes maintained. Bourdieu believed that cultural capital played an important, and subtle role. For Bourdieu, the more capital you have the more powerful you are.

Bourdieu saw families passing on cultural capital to their children by introducing them to dance and music, taking them to theatres, galleries and historic sites, and by talking about literature and art over the dinner table. The Riverview Academy is committed to ensuring all our pupils are equipped with the knowledge and cultural capital they need to succeed in life. Our curriculum and provision ensure that all our pupils acquire the essential knowledge they need to be educated citizens. We want all our pupils to leave Riverview, by the end of KS2, with aspirational goals for their future, without any limitations. We have carefully considered four domains for promoting and improving each child's level of cultural capital, based on research by Bourdieu. We believe that the more cultural capital a child has, the more likely they are to succeed in life and reach their potential.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Investigating	Explore familiar products and materials through play, talking about what they are, what they are used for and how they work.	Explore existing products and identify their purpose, materials and intended user.	Compare existing products, identifying similarities and differences in how they are made and how they function.	Investigate products to identify how materials, components and construction contribute to their function.	Analyse products against their purpose and user needs, considering how particular design features make them effective.	Research and compare products and significant designers, engineers and inventors, considering function, construction, materials, aesthetics and how design has developed.	Critically analyse products, significant innovations and the work of designers and engineers, using research and user feedback to inform and justify design decisions.
 Designing	Communicate ideas through talk, drawing, modelling and construction, making simple choices about materials, shape, colour and size.	Generate and communicate ideas through talking, drawing and simple models for a particular purpose.	Design purposeful products against simple design criteria, using labelled drawings, templates and models to communicate ideas.	Develop design criteria and communicate ideas through annotated drawings and models, giving reasons for key choices.	Use research and user needs to develop design criteria and communicate increasingly detailed ideas through annotated sketches and prototypes.	Develop functional designs informed by research, communicating ideas through detailed drawings, prototypes and appropriate diagrams.	Generate innovative, fit-for-purpose designs informed by research and user needs, communicating ideas precisely through annotated sketches, prototypes, cross-sectional or exploded diagrams and CAD where appropriate.
 Making	Select and safely use simple tools and materials to cut, shape, join and assemble.	Select from a range of tools and materials and use them with support to measure, mark, cut, shape and join.	Select appropriate tools, materials and components and assemble and join them with increasing independence.	Select tools and materials according to their characteristics and follow a design to make a functional product with increasing accuracy.	Select materials, components and tools according to their functional and aesthetic qualities, using them accurately.	Independently select appropriate tools, materials and techniques and work accurately to produce a well-finished product.	Independently select and justify tools, materials, components and techniques, working precisely to produce a high-quality functional outcome.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Testing	Explore whether creations work as intended and make simple changes during making.	Check whether a product works and does what it is intended to do.	Test products against simple design criteria and identify anything that needs changing.	Test products against their design criteria, considering how successfully they function.	Use appropriate tests to assess function, strength, stability or movement and identify improvements.	Test products systematically against design criteria and user needs, recording findings to inform improvements.	Devise appropriate tests and use evidence and user feedback to judge performance against detailed design criteria.
 Evaluating	Talk about what they have made, what they like and what they might change.	Talk about what worked well and what could be improved in their finished product.	Evaluate products against simple design criteria, identifying strengths and areas for improvement.	Evaluate products against their own design criteria and explain how effectively they meet their intended purpose.	Evaluate the effectiveness of design decisions and consider the views of others when identifying improvements.	Critically evaluate products against design criteria, function and user needs, using feedback to judge effectiveness.	Critically evaluate the effectiveness and quality of products, justifying judgements using design criteria, testing evidence and user feedback.
 Refining	Adapt creations during making when something does not work as intended.	Make simple changes to materials, joins or construction when something does not work.	Use testing to make purposeful changes to improve a product.	Adapt designs, materials or techniques during making in response to testing.	Use testing and evaluation throughout the process to refine designs and improve function.	Iteratively refine prototypes and products, using testing and feedback to make informed modifications.	Work iteratively and independently, using testing, evaluation and user feedback to justify and implement refinements throughout the design process.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Mechanisms	• Explore push, pull, turn, slide and roll through play and construction. • Notice that moving parts can cause an effect and that different actions produce different movements.	• Understand that a mechanism is made from moving parts that create or control movement. • Use pivots and simple linkages to create controlled movement in a shadow puppet. • Test the range and direction of movement and alter the position of moving parts where needed.			• Understand that wheels rotate around an axle and that axle position and alignment affect movement. • Construct a working wheel-and-axle system for a Roman chariot. • Test how wheel size, axle alignment and construction accuracy affect performance.	• Water Mills: understand rotary movement and how an axle transfers movement through a product. • Ocean Grabbers: understand how levers, pivots and linkages transfer movement and force. • Compare mechanisms and select components according to the movement and control required.	
 Construction	• Build, stack, balance and join using construction kits, loose parts and junk modelling. • Explore how shape, size, base and material affect whether a structure stands or falls. • Use simple joins such as glue, tape, string and slotting with increasing independence.	• Understand that a structure is made from parts joined together for a purpose. • Explore how wide bases, shape and folding/rolling materials can improve strength, stiffness and stability. • Select and join reclaimed materials to construct a freestanding castle.	• Select materials according to useful properties such as rigidity, flexibility, strength and weight. • Create and compare different joints; strengthen weak joins where needed. • Construct habitats and jointed products so that parts are stable, secure and fit for purpose.	• Measure, mark, cut and join with greater accuracy when constructing frames and small products. • Understand that corners, supports and reinforcement can increase rigidity. • Select materials for both functional and aesthetic qualities when making photo frames and brooches.	• Understand how beams, supports and bracing affect the strength of a bridge. • Use triangulation to reinforce structures and increase load-bearing capacity. • Test different structural forms and use evidence to strengthen or modify the final bridge.	• Measure and mark wood accurately and use appropriate hand tools safely. • Construct a rigid, level framework and understand how accuracy affects the movement and function of a maze. • Select joining and finishing techniques according to the functional and aesthetic qualities required.	• Use dimensions, scale and proportion to create precise digital designs. • Use CAD to model, review and modify a product before manufacture. • Justify structural and material choices according to function, user, sustainability and intended appearance.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Textiles	• Explore fabrics and flexible materials through threading, weaving, cutting and joining. • Notice differences in texture, thickness and flexibility and choose materials for simple purposes.				• Use a template or pattern to mark and cut fabric accurately. • Understand seam and seam allowance and join fabric using secure, increasingly even stitches. • Use running stitch and back stitch appropriately; tie secure knots and finish a functional cushion. • Select fabrics and decoration for both function and appearance.		• Select repair and alteration techniques according to material, damage and intended use. • Use accurate hand stitching to patch, reinforce, repair or alter textiles. • Apply knowledge of seams, stitches and fastenings with increasing independence. • Understand how repair, reuse and adaptation can extend product life and reduce waste.
 Nutrition	• Explore a range of foods through tasting and preparation and talk about likes, dislikes and healthy choices. • Use simple utensils safely to mix, spread, cut and combine ingredients with support. • Follow basic hygiene routines when handling food.	• Identify common fruit and vegetables and understand that food comes from plants, farms and other sources. • Use washing, peeling, cutting and combining techniques safely when preparing a salad. • Understand that a healthy diet includes a variety of foods and follow simple hygiene routines.		• Understand that food can be grown, reared or caught and that availability can be affected by place, season and period. • Follow a recipe and measure ingredients with increasing accuracy. • Use a range of preparation and cooking techniques safely to make food for an Iron Age feast, including predominantly savoury elements. • Explain how ingredients, cooking methods and hygiene affect the finished food.			• Understand provenance, processing, Fair Trade, sustainability and ethical considerations in food production. • Investigate how ingredients are grown, processed, transported and traded. • Adapt a recipe in response to intended user, taste, texture and appearance. • Measure accurately and work increasingly independently and hygienically when making a chocolate product.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Electrical Systems	• Explore familiar products that use electricity and notice that electricity can make things light, move or make sound. • Talk about buttons, switches and controls on everyday products.		• Identify a cell/battery, wires and bulb and understand that they must form a complete circuit for the bulb to work. • Build and test a simple circuit for a lamp and identify common reasons why a circuit may not work. • Understand basic electrical safety when handling classroom components.			• Understand that an electrical system is a group of components working together within a product. • Build and test a series circuit incorporating a switch and motor for an Ocean Grabber. • Integrate the circuit into the product so that electrical power creates or controls purposeful movement. • Identify simple faults and modify the circuit or construction to improve reliability.	

Vocabulary Progression

	EYFS	KS1	LKS2	UKS2
 Investigating	object, material, use, like, dislike	product, purpose, user, material, component, feature	function, research, compare, analyse, effective	innovation, manufacture, sustainability, evidence, impact
 Designing	idea, make, draw, choose	design, user, purpose, criteria, template, model	design brief, annotated sketch, prototype, diagram	specification, CAD, cross-sectional diagram, exploded diagram, constraints
 Making	tool, material, cut, join	equipment, measure, mark, shape, assemble, finish	component, accuracy, functional, aesthetic, technique	precision, sequence, justify, resourceful, manufacture
 Testing	work, try, change	test, criteria, function, strong, stable, movement	performance, compare, result, reliability	systematic, evidence, effectiveness, tolerance
 Evaluating	like, dislike, better, change	evaluate, criteria, successful, improve	effective, weakness, feedback, evidence	fitness for purpose, justify, quality, sustainability, user response
 Refining	change, improve	adapt, modify, improve	refine, prototype, feedback, iteration	iterate, optimise, constraint, compromise, modification

Vocabulary Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Mechanisms	move, push, pull, turn, slide, roll	mechanism, pivot, linkage, movement, input, output			wheel, axle, rotate, chassis, alignment	rotary, lever, linkage, pivot, force, transfer, efficiency	
 Construction	build, join, stack, balance, strong, weak	structure, base, stable, stiff, strengthen	rigid, flexible, properties, joint, secure	frame, support, reinforce, measure, finish	beam, span, load, brace, triangulation	timber, framework, accuracy, saw, join	dimension, scale, proportion, prototype, specification

Vocabulary Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Textiles	fabric, thread, weave, cut, join				template, pattern, seam, seam allowance, running stitch, back stitch, knot		repair, patch, reinforce, alter, fastening, durable, reuse
 Cooking and Nutrition	ingredient, taste, healthy, mix, spread, cut	fruit, vegetable, prepare, wash, peel, combine		recipe, measure, hygiene, seasonal, grown, reared, caught, savoury			provenance, process, Fair Trade, ethical, sustainable, adapt, texture

Vocabulary Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
 Electrical Systems	button, switch, light, sound, movement		circuit, cell, battery, wire, bulb, component, complete circuit			series circuit, switch, motor, conductor, insulator, fault	