The Royal School

Wolverhampton

Curriculum 2025

Design & Technology

Curriculum Concepts
Design & Technology

Intent

At The Royal School, our curriculum is designed to foster a lifelong love of learning and to nurture pupils who are confident, knowledgeable, and empathetic. Grounded in our school values —**Respect, Trust, Community, Initiative and Risk** — our intent is to provide a high-quality education where every child knows more, remembers more, and applies their knowledge confidently. Our curriculum is carefully sequenced to ensure concepts are introduced logically, with foundational knowledge underpinning more complex ideas. We prioritise knowledge and memory building through planned opportunities for retrieval, consolidation and progression. Pupils revisit key concepts frequently, supporting long-term retention and understanding.

We are committed to ensuring that all children immerse themselves in their learning. Through diverse representation and a focus on cultural capital, we encourage empathy, inclusion, and global citizenship. Every child, regardless of background or ability, is supported to meet ambitious expectations through adaptive teaching and inclusive strategies that promote challenge and achievement for all. Our curriculum is purposefully designed to engage, inspire and challenge, cultivating learners who are resilient, reflective, and equipped to thrive in modern society.

Implementation

To support staff in developing long-term, medium-term, and short-term curriculum and lesson planning, we have identified key curriculum concepts that underpin effective teaching and learning. Below is a summary of these concepts with brief explanations:

Sequencing & Progression: Curriculum content is thoughtfully ordered across and within year groups. Long- and medium-term plans ensure coherence, while individual lessons and 'The Royal Way' framework scaffold learning effectively. Subject leaders oversee sequencing to ensure continuity and progression. Proper sequencing ensures that foundational concepts are mastered before introducing more complex ideas, thereby building upon prior knowledge. This structured approach supports cumulative learning and prevents cognitive overload.

Adaptive teaching & Assessment: Effective assessment strategies include both **formative assessments** (ongoing checks for understanding during instruction) and **summative assessments** (evaluations at the end of instructional units). Aligning assessments with learning objectives ensures that they accurately measure intended outcomes. Pupil progress is regularly reviewed, with targeted interventions delivered as needed. Adaptive teaching ensures that instruction is responsive to the varying needs, abilities, and learning styles of students. This approach involves ongoing assessment, flexible grouping, live feedback, questioning, informal checks, and formal reviews. These are used to identify gaps and adapt teaching responsively to support and challenge. Effective adaptive teaching fosters inclusivity, helping all students to progress at their own pace while achieving high expectations.

Retrieval Practice & Interleaving: We embed retrieval throughout lessons using 'Think Backs', 'Do Now' activities at the start of lessons, low-stakes quizzes and working walls. These strategies reinforce prior learning and strengthen memory pathways, promoting deep understanding and knowledge fluency. Interleaving is an instructional strategy that alternates between different topics or skills within a single learning session. Unlike traditional blocked practice, where one topic is practiced extensively before moving to the next, interleaving mixes multiple topics, enhancing discrimination between concepts and improving retention. This approach challenges learners to continually retrieve and apply different information, strengthening memory and understanding.

Engagement: Engagement encompasses the strategies employed to capture and maintain students' attention, interest, and active participation in the learning process. High levels of engagement are associated with improved comprehension and retention. Techniques to enhance engagement include interactive activities, real-world applications, collaborative learning, and incorporating student interests into lessons. We hook learners through exciting experience days, curriculum-linked enrichment, and content pitched to meet and build upon pupils' current understanding. Strong relationships and positive learning behaviours ensure high levels of participation and enthusiasm.

Challenge & Aspiration: Challenge involves designing tasks and questions that stretch students' thinking and push them beyond their comfort zones. It is important to balance support and challenge to ensure all students are appropriately stimulated and motivated to progress. Tasks are designed to stretch thinking through resilience, modelling, scaffolding, and high expectations. Learners are encouraged to persevere, question deeply, and embrace productive struggle. Aspiration in the curriculum encourages students to develop a growth mindset. It involves exposing students to ambitious goals, inspiring role models, and future pathways that foster motivation and ambition. A curriculum that promotes aspiration helps students understand the value of perseverance and lifelong learning.

Context: Contextual learning connects curriculum content to real-world applications, making learning more meaningful and relevant for students. Providing context helps learners see the purpose behind what they are studying, whether through cross-curricular links, historical or cultural perspectives, or practical, real-world scenarios. This approach enhances engagement and retention.

Personal Development: Personal development in the curriculum focuses on fostering students' social, emotional, and character growth alongside academic learning. It includes promoting resilience, self-awareness, emotional intelligence, and a sense of responsibility. A well-rounded curriculum should encourage students to develop key life skills, confidence, and independence, preparing them for future challenges in education, work, and personal life.

In Senior School our curriculum is structured in learning cycles. Each cycle lasts for 7 weeks and includes at least one assessment followed by a review where re-teaching or stretch and challenge opportunities, tailored to the needs of the pupils can take place. There are 5 learning cycles per year.

Impact

The impact of our curriculum is measured not only in outcomes but in how pupils grow as learners and individuals. Pupils develop secure knowledge, transferable skills, and the confidence to apply their learning. They are engaged, resilient, and motivated, with the capacity to meet challenges and adapt to new contexts.

Progress is tracked over time through assessment data, lesson drop-ins, pupil voice, and work scrutiny. By integrating these concepts into curriculum planning The Royal intend to create structured, dynamic, and effective learning experiences that cater to the varied needs of our pupils. A well-designed curriculum ensures progression, engagement, and long-term success in learning. Our ambition is that all children leave The Royal School with the knowledge, behaviours, and attitudes to succeed academically, socially, and emotionally — prepared for the next stage of their education and life beyond.

Design & Technology Curriculum Intent

Intent

Aligned with the National Curriculum, we are committed to delivering a broad and balanced curriculum that fosters the acquisition of knowledge, nurtures a love of learning, and equips our students for both work and leisure as active, confident, and responsible members of society.

In Design and Technology, our aim is for students to harness their creativity and imagination to design and create products that address real and meaningful problems across a range of contexts, taking into account their own needs as well as those of others. Design and Technology is an inspiring, rigorous, and practical subject in which students develop extensive subject knowledge and make valuable connections with Mathematics, Science, Engineering, Computing, and Art.

Through this subject, students are encouraged to take risks and become resourceful, innovative, enterprising, and capable individuals. By evaluating past and present examples of design and technology, they gain a critical understanding of its influence on daily life and the wider world. A high-quality Design and Technology education makes a vital contribution to the creativity, culture, economy, and wellbeing of the nation.

Curriculum Implementation

In Design and Technology, students attend two lessons per week in Year 7 and Year 8, following a carousel system of 12 weeks, in conjunction with Food Technology and Computing. There are two lessons per week at GCSE, and 5/6 lessons per week for A-Level. Our curriculum is structured in learning cycles. Each cycle lasts for 7 weeks and includes at least one assessment followed by a review where re-teaching or stretch and challenge opportunities tailored to the needs of the pupils can take place. There are five learning cycles per year.

Each lesson follows The Royal Lesson structure below:

- Seriously Strong Start and Do It Now Task
- Date and Learning Question
- Homework set at the start of the lesson (Year 9 upwards)
- The learning journey shared including lesson objectives and success criteria.
- Lesson content with various degrees of challenge, and challenge tasks every lesson.
- Review learning objectives at the end of each lesson.

Our curriculum is implemented in many ways, including taught lessons, out of class experiences and tutorial sessions.

DT Curriculum Impact

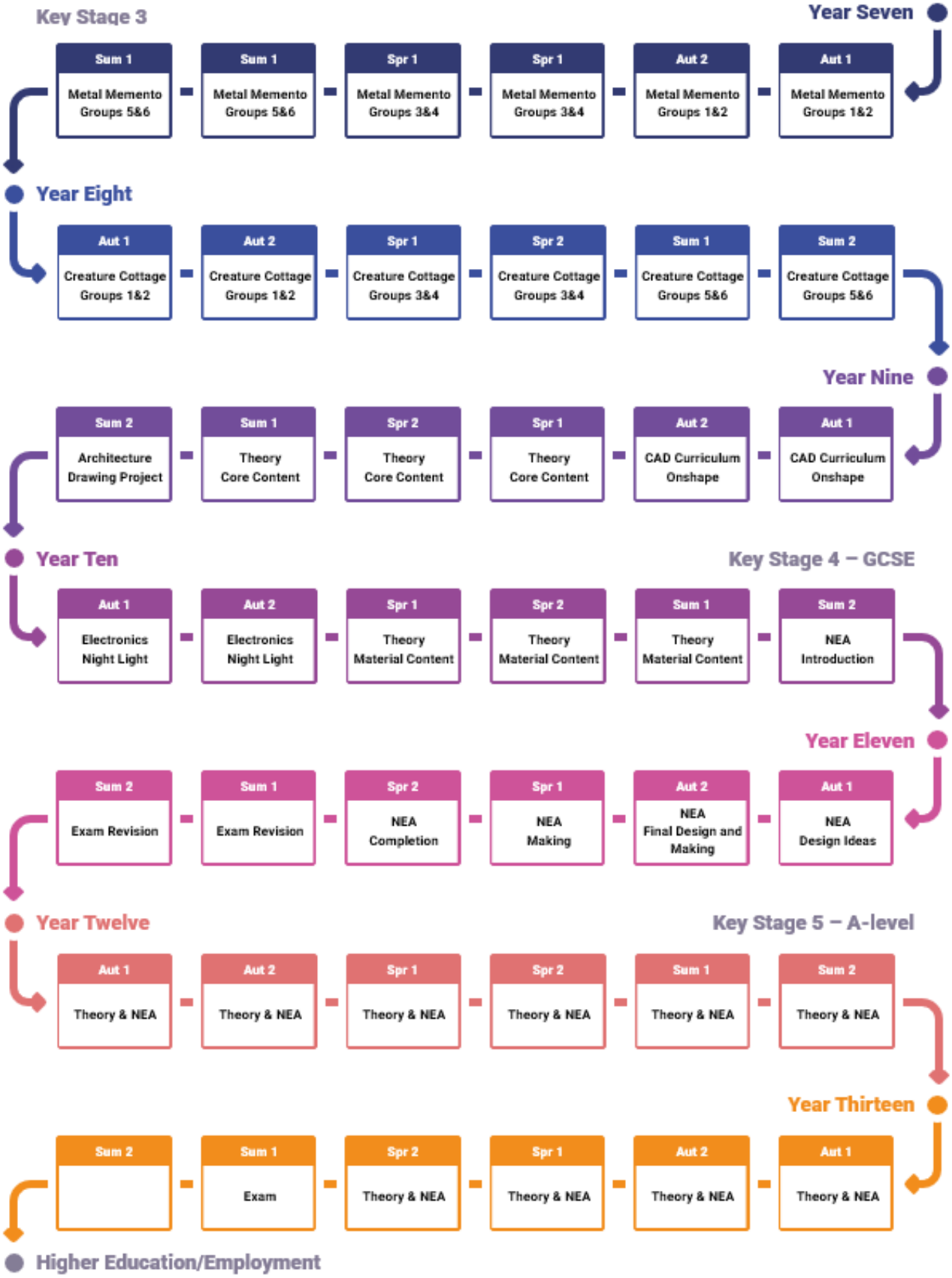
The impact of our curriculum is evaluated through the gathering of quantitative and qualitative information, indicating how ready students are for the next stage in their learning, whether that be the transition between Key Stages, or leaving for tertiary education, or the world of work at the end of Year 11.

This includes an assessment of, and the use of information from:

- The number of students achieving the national average at the end of their Key Stage indicating their readiness to move forward with the next stage of their learning journey.
- The number of students gaining places at their first-choice universities.
- The number of students gaining entry into their chosen career route including apprenticeships and employment.

Design Learning Journey

Subject Curriculum Map: Year 7 to 13



How Design & Technology enables all students to thrive and achieve

How inclusive lessons have been planned
Lessons have been planned to include a broad variety of **learning activities**, such as **hands-on making, sketching, CAD modelling, circuit design, research, and evaluation**, ensuring accessibility for a wide range of learning styles. Pupils are provided with **scaffolded tasks** (e.g. initial sketching before developing in 3D, or choosing from pre-cut templates before moving to free design), which supports both high- and low-attaining students. Inclusive planning includes **multiple ways to show understanding** – e.g. via drawing, annotation, verbal explanation, or practical demonstration – ensuring that pupils with different strengths can succeed. **Target users** are considered during design projects (e.g. keyrings, birdhouses), which offers pupils an opportunity to draw on their personal identity or community, promoting inclusivity and relevance.
How an inclusive environment has been created
Classrooms are designed to be **visually clear, physically accessible**, and **well-organised** with defined work zones (cutting, sanding, electronics, etc.), ensuring safe and confident movement for all learners. A **culture of mutual respect** is fostered through collaborative design critiques and shared tools/resources, where every pupil's contribution is valued. Pupils are encouraged to **personalise projects** (e.g. engraving initials or symbols), making work meaningful and inclusive of diverse backgrounds, interests, and identities. Resources are adapted to suit pupils' needs (e.g. using larger print templates, physical models for reference, or step-by-step guides for EAL or SEND learners).
How the curriculum has been considered for pupils with additional needs
The curriculum allows **flexibility in outcome and pathway**: for example, while all pupils learn skills in sketching and modelling, the final complexity of the product (e.g. a keyring with simple vs. intricate engraving) can vary by ability. Additional adult support or peer pairing is used during more technical activities (e.g. soldering or scroll saw use), allowing pupils with physical, cognitive, or processing difficulties to participate safely. Schemes of work build in **structured repetition** of key skills (e.g. measuring, marking, joining) across units, which supports retention for pupils with memory or processing needs. Visual aids, modelling, and **chunked instruction** are embedded throughout to support pupils with ASD, ADHD, or speech and language needs.

Adaptive teaching strategies

How learners are supported with literacy
• Pupils use **subject-specific vocabulary** in context through tasks like annotating sketches, writing evaluations, or creating exploded diagrams. • Sentence starters and **key vocabulary displays** are provided around the classroom to reinforce technical terms. • Teachers **model structured responses** during evaluations (e.g. “The material was suitable because…”), supporting pupils with expressive language challenges. • Design tasks include **research components** (e.g. studying materials, analysing existing products), helping pupils build functional literacy linked to real-world application.
How learners are supported to retain vocabulary
• Vocabulary is introduced through **multi-sensory methods** – spoken, visual (e.g. labelled diagrams), and practical (e.g. using the tool while naming it). • **Repetition across lessons** (e.g. revisiting terms like "ferrous", "lap joint", "sensor") and retrieval activities (quizzes, flashcards, "What’s the word?" games) help embed understanding. • Learners are encouraged to use vocabulary in context via **peer explanations**, group discussions, and labelled design work. • Displays and vocabulary mats are used consistently as reference tools.
How learners are supported with numeracy
• Pupils engage in **real-world numeracy** (e.g. accurate measuring, calculating dimensions, scaling in CAD software), giving mathematical skills a clear and practical context. • **Scaffolded measurement tasks** with visual guides (e.g. ruler overlays, measuring jigs) help pupils who struggle with spatial awareness or number accuracy. • Estimation, ratio, and geometry (e.g. cutting angles, using symmetry) are embedded in design tasks, reinforcing cross-curricular maths understanding. • Worksheets and templates include **step-by-step calculations** where needed, and teachers model mathematical problem-solving during demonstrations.
How learners are supported to develop conceptual understanding
• Pupils develop understanding of abstract concepts (e.g. force, energy transfer, system inputs/outputs) through **practical application** – building circuits, testing joints, modelling mechanisms. • **Concepts are broken down** into stages (e.g. understanding force by first observing simple levers before applying in product design). • Visuals, physical models, and simulations (e.g. in CAD or electronics) are used to demonstrate theoretical ideas. • Pupils revisit concepts in **progressive units** (e.g. applying material properties in both keyring and birdhouse projects), reinforcing learning through multiple contexts.
How teaching is adapted for learners who struggle with attention
• Lessons are broken into **short, focused tasks** with clear goals and visible timers to structure working time. • **Step-by-step instructions** are modelled both live and on printed prompt sheets. • Regular **check-ins** and use of visual task boards help keep pupils on track and reduce overwhelm. • Activities involve **hands-on, kinaesthetic learning**, which helps sustain engagement and focus in practical learners. • Safe zones and quiet break areas are considered where appropriate, for pupils who become overwhelmed.
How teaching is adapted for learners who struggle with change and transition
• Teachers provide **clear advance warnings of changes**, such as tool use, new topics, or group reorganisation.

- **Visual timetables or lesson plans** are displayed and referred to regularly so pupils can anticipate what's next.
- Transition points (e.g. moving from sketching to making) are scaffolded with reminders, recap sessions, and sometimes individual preparation.
- **Consistency in routines and layout** is maintained – tools have defined places, instruction structure is predictable, and expectations are clearly reinforced.

Design & Technology KS3 Curriculum Mapping

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/840002/Secondary_national_curriculum_corrected_PDF.pdf

National curriculum content	Year 7	Year 8	Year 9 (GCSE foundation year)
Purpose of Study			
Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation			
Aims: The national curriculum for Design and Technology aims to ensure that all pupils:			
- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. - Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes for a wide range of users. - Critique, evaluate and test their ideas and products and the work of others.			
Subject Content: When designing and making, pupils should be taught to:			
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food , energy, agriculture (including horticulture) and fashion].			
National Curriculum	Year 7	Year 8	Year 9 (GCSE Foundation Year)
Design Use research and exploration, such as the study of different cultures, to identify and understand user needs. Identify and solve their own design problems and understand how to reformulate problems given to them. Develop specifications to inform the design of innovative, functional and appealing products that respond to needs in a variety of situations.	Pupils will generate creative ideas for a keyring by sketching different shapes, patterns, and themes. They will consider personal meaning, aesthetics, and functionality to develop unique and appealing designs. Pupils will identify the target user for the keyring by exploring preferences, interests, and practical needs, ensuring their design is both meaningful and functional for the intended audience.	Pupils will clearly define the purpose of the birdhouse, specifying which bird it is intended to house. They will consider the needs of the bird and how the backboard can enhance both function and aesthetics. Pupils will outline key design requirements, such as stability, durability, and ease of use, ensuring the birdhouse holder is practical and well-constructed. Pupils will consider personalization options, such as engraving, paint, or decorative elements, to make their birdhouse design unique and meaningful to the user.	Pupils will learn how new and emerging technologies impact design, manufacturing, and society, shaping contemporary and future developments. They will understand how critically evaluating these technologies informs design decisions, considering ethical, environmental, and economic perspectives. Pupils will investigate environmental, social, and economic challenges, identifying opportunities and

Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses. Develop and communicate design ideas using annotated sketches, detailed plans, 3D and Mathematical modelling, oral and digital presentations and computer-based tools.	Pupils will sketch four initial keyring ideas, exploring different shapes, patterns, and design themes to create a variety of possibilities. They will consider aesthetics, functionality, and personal meaning while experimenting with different engraving styles and material finishes. Pupils will select the two strongest keyring designs based on feedback and practicality. They will refine these ideas through detailed sketches or digital models and evaluate their effectiveness in terms of durability, visual appeal, and ease of manufacturing before finalising the most successful concept for production.	Pupils will develop the ability to sketch their wooden birdhouse design in 3D, using perspective and depth to accurately represent proportions and structure. They will learn to illustrate different views, including the front, side, and top, to communicate design details effectively. By incorporating shading and annotations, pupils will enhance their sketches to make them clearer for planning and production. Pupils will sketch initial birdhouse ideas, experimenting with different backboard shapes, functions, and design features to explore a variety of creative possibilities. They will narrow down to refined designs based on feedback, assessing aesthetics, functionality, and ease of construction. Pupils will develop detailed sketches, making improvements to structure and joinery before finalising the strongest concept for making.	constraints in design and manufacturing. They will study the work of past and present designers and companies to gain inspiration and insights. Pupils will use varied design strategies to generate creative ideas while avoiding design fixation. They will learn how to develop, communicate, record, and justify design ideas using appropriate techniques to create effective and well-informed solutions. Pupils will develop the ability to transform 2D design sketches into 3D models, improving spatial awareness and technical understanding. By using isometric drawing, orthographic projections, or CAD software, they will visualise how flat designs take shape in three dimensions. This skill will help refine proportions, construction methods, and material choices before moving to the making stage. Pupils will learn to create detailed exploded drawings that show how different components of a design fit together, helping them understand assembly processes, joinery, and material placement before construction. Pupils will develop skills in digital or hand-drawn rendering techniques to create realistic representations of final products. They will use shading, textures, and lighting effects to enhance visual appeal and accurately communicate design intentions. Pupils will use traditional modelling techniques,

			working with physical materials like foam board, cardboard, or clay to construct scale models of designs. This hands-on approach will allow them to test proportions, functionality, and structural stability before final production.
Make Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture. Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties.	Pupils will cut metal into the desired keyring shape using a hacksaw, ensuring accuracy and precision in their work. Pupils will refine straight edges with a straight file and smooth curved areas with a curved file to achieve a clean finish. They will use sandpaper to further smooth the surface, preparing it for engraving and polishing. Pupils will engrave patterns, initials, or decorative details with a Dremel engraver to add a personal touch. Pupils will apply Brasso to remove tarnish and enhance the final appearance, giving the keyring a polished and professional finish.	Pupils will measure and mark out the wooden pieces accurately before cutting to ensure precision. They will use appropriate tools, such as a saw for cutting and a file or sandpaper to smooth rough edges. Pupils will assemble the birdhouse holder using strong joinery techniques, ensuring all pieces fit securely and align correctly. Pupils will sand all surfaces thoroughly to remove splinters and achieve a smooth texture. They will apply paint, varnish, or wood stain to enhance durability and aesthetics. Pupils will personalise the holder with engraving or decorative elements, ensuring the final product is both visually appealing and functional. Pupils will learn to construct their birdhouse using basic joints. They will also use semi-permanent fixings with wood glue to reinforce the structure, ensuring durability while allowing for a clean and seamless finish. Through this process, pupils will develop skills in accurate measuring, cutting, and assembling to create a well-constructed and long-lasting product.	Pupils will develop accuracy in measuring and designing using CAD software and digital tools to ensure precise dimensions and scaling. They will learn how to apply measurement techniques for prototyping, manufacturing, and quality control, reducing errors and improving efficiency in the design process. Pupils will develop precision cutting skills using craft knives for detailed work on materials like card, foam, or thin wood. They will learn safe handling techniques to achieve clean and accurate cuts. Pupils will understand how to use hot glue guns effectively for quick and strong bonding in model-making and prototyping. They will focus on safety precautions to avoid burns and ensure secure adhesion. Pupils will gain experience with rulers, squares, compasses, and marking gauges to accurately measure and mark materials before cutting or assembling. They will learn how precise marking improves the quality and accuracy of the final product. Pupils will develop control and accuracy in using chisels for carving, shaping, and creating joints in wood. They will

			learn different chiselling methods, such as paring and mortising, to achieve clean and precise results. Pupils will develop essential skills in measuring, cutting, shaping, and assembling materials accurately. They will learn how to use appropriate tools and machinery to create well-constructed and durable products. Pupils will gain hands-on experience in crafting lap joints, which provide strength and simplicity, and finger joints, which interlock for enhanced durability and aesthetics. They will develop precision in cutting and fitting these joints for high-quality construction. Pupils will gain hands-on experience in soldering techniques to securely join electronic components onto circuit boards. They will focus on precision, safety, and creating strong electrical connections for reliable performance. Pupils will learn how to design and build simple and complex circuits, incorporating components such as resistors, LEDs, switches, and microcontrollers. They will develop troubleshooting skills to test and refine circuit functionality.
Evaluate Analyse the work of past and present professionals and others to develop and broaden their understanding Investigate new and emerging technologies Test, evaluate and refine their ideas and products	Pupils will examine the design of a keyring by evaluating its shape, size, material choice, and overall aesthetics. They will consider how well it meets the intended purpose, durability, and ease of use, and assess how design elements such as engraving, patterns, or cutouts	Pupils will narrow down their initial birdhouse ideas to refined designs based on feedback, assessing their aesthetics, functionality, and ease of construction, ensuring the final concept meets the intended purpose and user needs.	Pupils will understand how the critical evaluation of new and emerging technologies informs design decisions, considering ethical, environmental, and economic perspectives. Pupils will investigate environmental, social, and economic

against a specification, taking into account the view of intended users and other interested groups. Understand developments in Design and Technology, its impact on individuals, society and the environment and the responsibilities of designers, engineers and technologists.	contribute to visual appeal and practicality.		challenges, identifying opportunities and constraints in design and manufacturing.
Technical Understanding Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions Understand how more advanced mechanical systems used in their products enable changes in movement and force Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as input and outputs] Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].	Pupils will investigate different metals, such as aluminium, brass, or stainless steel, to determine their durability, weight, and suitability for engraving or shaping. They will consider factors like cost, finish, and ease of manufacturing. Pupils will test how different metals react to cutting, engraving, or polishing techniques and explore various textures, finishes, and treatments to enhance the final look and feel of the keyring.	Pupils will identify suitable materials and joinery techniques to create a sturdy and visually appealing birdhouse product. Pupils will accurately cut out their backboard and other intricate design elements using the scroll saw, developing precision cutting skills. Pupils will create clean and precise holes for assembly or functional features using the pillar drill, ensuring stability and alignment in their work. Pupils will refine rough edges and surfaces using the disc sander, developing skills in achieving a smooth and professional finish before applying final treatments.	Pupils will explore how energy is generated and stored, enabling them to select appropriate sources for powering products and systems. They will investigate advancements in modern and smart materials, composite materials, and technical textiles, understanding their applications and benefits. Pupils will learn about mechanical devices and how they create different movements by altering force magnitude and direction. They will discover how electronic systems, including sensors and control devices, provide functionality by responding to inputs and producing varied outputs. Pupils will understand the role of programmable components in enhancing and customizing product operation. Pupils will develop knowledge of material categorisation, including ferrous and non-ferrous metals, papers and boards, thermoforming and thermosetting polymers, textiles (natural, synthetic, blended, and mixed fibres), and timbers (natural and manufactured), understanding their

			properties and structures. They will recognise how all design and technological practices are influenced by context, shaping outcomes and innovations. Pupils will understand the difference between permanent fixings (such as adhesives, screws, and nails) and temporary fixings (such as clamps and bolts), learning when and how to apply each for stability and flexibility in design. Pupils will develop an understanding of how electronic components work together within a system, including inputs, processes, and outputs. They will learn to design and assemble basic electronic circuits for functional and interactive projects. Pupils will learn to create 3D digital models using CAD software to visualise and refine design ideas before manufacturing. They will develop skills in scaling, extrusion, and rendering to produce accurate and detailed representations of products. Pupils will understand how digital modelling enhances precision, efficiency, and problem-solving in the design process.

RSW All Through Design & Technology Curriculum map

Key Stage	Year	Project September – December		Projects January - April		Projects May - July	
KS3	7	**Group 1 – 7X1** **Metalwork** Metal Mementos	**Group 2 – 7Y1** **Metalwork** Metal Mementos	**Group 3 – 7X1** **Metalwork** Metal Mementos	**Group 4 – 7Y1** **Metalwork** Metal Mementos	**Group 5 – 7X1** **Metalwork** Metal Mementos	**Group 6 – 7Y1** **Metalwork** Metal Mementos
	8	**Group 1 – 8X1** **Woodwork** Creature Cottage	**Group 2 – 8Y1** **Woodwork** Creature Cottage	**Group 3 – 8X1** **Woodwork** Creature Cottage	**Group 4 – 8Y1** **Woodwork** Creature Cottage	**Group 5 – 8X1** **Woodwork** Creature Cottage	**Group 6 – 8Y1** **Woodwork** Creature Cottage
KS4	9	**Computer Aided Design** Onshape Software Curriculum	**Computer Aided Design** Onshape Software Curriculum	**Exam Theory** Core Content	**Exam Theory** Core Content	**Exam Theory** Core Content	**Drawing Project** Architecture
	10	**Electronics** Night Light Project	**Electronics** Night Light Project	**Exam Theory** Material Specialism Content	**Exam Theory** Material Specialism Content	**Exam Theory** Material Specialism Content	**Non Examined Assessment** Introduction
	11	**Non Examined Assessment** Design Ideas	**Non Examined Assessment** Final Design Ideas	**Non Examined Assessment** Final Model Development	**Non Examined Assessment** Evaluation and Completion	**Exam Revision** Core and Material Content	**Exam Revision** Core and Material Content
KS5	12	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**
	13	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Learning Cycle 1 Theory** **Independent Design and Make Project**	**Exam Revision**

Design and Technology Curriculum Skill Map 2025-26

Year 7 (12 Week Rotation)	Year 8 (12 Week Rotation)	Year 9	Year 10	Year 11	Year 12	Year 13
• Design Analysis • Design Ideation • Design Briefs • Design Specification • Design Development • Material Exploration • Equipment Use • Preparation and Finishing • Machinery Use	• Design Analysis • Design Ideation • Design Briefs • Design Specification • Design Development • Material Exploration • Equipment Use • Preparation and Finishing • Machinery Use	• 2D Drawing • Oblique • Isometric • Orthographic • Exploded Views • Realism Rendering	Advanced Joint Making Half Lap Joint Finger Joint Mortise and Tenon Joint	NEA	NEA	NEA
		• Introduction to Digital Modelling Digital Work Presentation Layout and Annotation	CAMS and Levers Mechanism Development Accuracy when Manufacturing	NEA	NEA	NEA
		• Digital Measurements Traditional Modelling Craft Knives Hot Glue Guns • 2D to 3D Concept Transition	Polymers Thermoforming Thermosetting Vac Former	NEA	NEA	NEA
		• Section A Core Content	Non Examined Assessment	NEA	NEA	
		• Section A Core Content	Non Examined Assessment	GCSE/BTEC exams followed by A level bridging work	NEA	A level/BTEC exams followed by University bridging work

NB. The detailed SOW, assessments and lessons for each learning cycle should be placed in the correct folder in the subject team.

Design and Technology Assessment Calendar 2025-26

	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Learning Cycle 1	Week 6 Written Assessment	Week 6 Written Assessment	Week 6 CAD Assessment	Week 6 Night Light Halfway Point	NEA will be collected and assessed in line with completion of each component.	NEA will be collected and assessed in line with completion of each component	NEA will be collected and assessed in line with completion of each component
Learning Cycle 2	Week 11 Project Evaluation	Week 11 Project Evaluation	Week 11 CAD Assessment	Week 11 Night Light	3-21 Nov Mock exams See above.	5-9 Jan Mock exams See above.	5-9 Jan Mock exams See above.
Learning Cycle 3	Repeats for next Carousel	Repeats for next Carousel	End of Learning Cycle Assessment Theory	End of Learning Cycle Assessment Theory Based	23 Feb – 6 Mar Mock exams See above.	See above.	See above.
Learning Cycle 4	Repeats for next Carousel	Repeats for next Carousel	End of Learning Cycle Assessment Theory	13-24 April Mock exams End of Learning Cycle Assessment Theory Based	See above.	See above.	See above.
Learning Cycle 5	Repeats for next Carousel	Repeats for next Carousel	End of Learning Cycle Assessment Architecture	NEA will be collected and assessed in line with completion of each component.	GCSE/BTEC exams	15-19 June mock exams See above.	A level/BTEC exams

The Royal School

KS3 Assessment Criteria

Pupils in years 7, 8 and 9 will be assessed on their knowledge, understanding and skills of the curriculum. GCSE grades will be used in years 10 and 11. Each assessment should have the following matrix showing exactly where pupils have met each criteria. The statements should be framed positively e.g. I can….

Year 7	WB – Working below end of year expectations	WT – Working towards end of year expectations	WAT – Working at end of year expectations	WA – Working above end of year expectations
Project Research	I am beginning to explore information about metals and keyring design and I am developing my research skills.	I can find some basic information about different metals and keyring designs and I am starting to learn about their properties.	I am able to research metals like Brass, Aluminium, and Copper, and keyring designs, and I have a basic understanding of how these materials work for my project.	I can carry out detailed research using high-quality sources, and I understand how different metals and keyring designs relate to my project outcomes.
Design Understanding	I am starting to understand what is needed for my keyring project and I am learning about different materials and how they might be used.	I can explain some ideas for my keyring design and I am beginning to think about material choices and how they might be applied.	I am able to clearly explain my keyring design and why I have chosen materials like Brass, Aluminium, and Copper for specific purposes.	I can demonstrate a deep understanding of design principles and material properties, and I am able to think creatively and include advanced features in my design.
Design Specification	I am starting to think about how to create a design specification and what details I might need to include for making my product.	I can write a basic design specification and I am beginning to include details like measurements, materials, or processes.	I am able to create a clear and detailed design specification that includes accurate dimensions, material choices, and methods for making my keyring.	I can produce a comprehensive and thoughtful design specification that considers all parts of the making process and any challenges I might face.
Design Communication	I am beginning to show my ideas using drawings or notes and I am learning how to communicate my designs more clearly.	I can share my ideas using simple sketches or writing, and I am working on making my designs clearer for others to understand.	I am able to communicate my design ideas clearly using good sketches, diagrams, and written explanations that show what I plan to make.	I can produce professional-quality sketches, clear diagrams, and detailed explanations to communicate my design ideas

				thoroughly and effectively.
Equipment Use	I am beginning to learn how to use tools and equipment safely and correctly, and I am building my confidence with practical work.	I can use tools and equipment with some help, and I am developing safe and careful working habits.	I am able to use tools and equipment confidently and correctly, and I work safely and effectively.	I can use tools and equipment skillfully and independently, showing excellent practical skills and a strong focus on safety.
Material Understanding	I am starting to learn about different materials like Brass, Aluminium, and Copper, and I am finding out what their properties are.	I can describe some properties of materials and I am beginning to understand how these might affect my project.	I am able to explain the properties of materials like Brass, Aluminium, and Copper, and how they influence my design decisions.	I can show excellent understanding of different materials, their strengths and weaknesses, and how to choose the best ones for my project.
Project Evaluation	I am beginning to think about how my project went and what I could do differently next time.	I can reflect on my project and share some thoughts about what went well and what I might improve.	I am able to thoughtfully evaluate my project, considering what was successful, what could be improved, and how my material and design choices affected my results.	I can carry out a detailed and critical evaluation of my project, analysing successes and challenges and connecting what I've learned to future work and broader design principles.

NB. The assessment criteria matrix should be saved in the correct folder in the subject team.

Year 8	WB – Working below end of year expectations	WT – Working towards end of year expectations	WAT – Working at end of year expectations	WA – Working above end of year expectations
Project Research	I am beginning to explore information about birdhouse designs and materials, and I am developing my research skills.	I can find some basic information about different birdhouse designs and materials and I am starting to learn how they might be used.	I am able to research birdhouse designs, materials like Pine, MDF, and Scrap Wood, and understand basic construction techniques	I can carry out detailed research using high-quality sources, showing a deep understanding of birdhouse design, materials, and how my material choices affect strength, durability, and appearance.
Design Understanding	I am beginning to understand how a birdhouse should be designed and I am learning about different materials and how they might be used.	I can explain some ideas for how a birdhouse should be built and I am starting to think about how my material choices affect its strength and purpose.	I am able to clearly explain how my birdhouse will work, including how Pine, MDF, and Scrap Wood contribute to the strength, durability, and appearance of my design.	I can show deep understanding of how to design and build a birdhouse, and I am able to think creatively about how to improve its function, durability, or look through innovative design ideas.
Design Specification	I am starting to think about how to create a design specification for my birdhouse and what details I need to include to build it.	I can write a basic design specification for my birdhouse and I am beginning to include details like measurements, materials, and construction methods.	I am able to create a clear and detailed design specification that includes accurate dimensions, material choices, and an understanding of how the birdhouse will be constructed.	I can produce a comprehensive and highly detailed design specification that considers all parts of making my birdhouse, including precise measurements, material strengths, and potential challenges.
Design Communication	I am beginning to show my birdhouse ideas using drawings or notes and I am learning how to communicate my designs more clearly.	I can share my birdhouse ideas using basic sketches or writing, and I am working on making my designs clearer for others to understand.	I am able to clearly communicate my birdhouse design using good sketches, diagrams, and written explanations that show how it will be built and which materials will be used.	I can create professional-quality sketches, detailed diagrams, and thorough written explanations to clearly show my birdhouse design, how it works, and how materials will be used.

Equipment Use	I am beginning to learn how to use tools and machinery safely and correctly, and I am building my confidence with practical work on my birdhouse project.	I can use tools and machines like the fret/scroll saw and disc sander with some help, and I am developing safe working habits.	I am able to use tools and machinery confidently and correctly, working safely and effectively when making my birdhouse.	I can use tools and machines skillfully and independently, showing excellent practical skills and a strong focus on safety and precision when working on my birdhouse.
Material Understanding	I am beginning to learn about materials like Pine, MDF, and Scrap Wood and I am exploring how they could be used in my birdhouse project.	I can describe some properties of materials and I am starting to understand how these might affect how my birdhouse is built and how long it lasts.	I am able to explain the properties of materials like Pine, MDF, Plywood, and Acrylic, and I can clearly say why I have chosen them for parts of my birdhouse.	I can show excellent understanding of different materials, how they work, and why they are suitable for specific parts of my birdhouse to make it strong, durable, and attractive.
Project Evaluation	I am beginning to think about how my birdhouse project went and what I could do differently next time.	I can reflect on my birdhouse project and share some thoughts about what went well and what I might improve.	I am able to thoughtfully evaluate my birdhouse project, identifying what was successful, what could be better, and how my material and design choices affected the final result.	I can carry out a detailed and critical evaluation of my birdhouse project, analysing successes and challenges, and connecting what I've learned to future projects and broader design principles.

Year 9 Project 1	WB – Working below end of year expectations	WT – Working towards end of year expectations	WAT – Working at end of year expectations	WA – Working above end of year expectations
Project Research	I can identify different architectural drawing styles and artists/designers from the past and present.	I can research examples of orthographic, isometric, and perspective drawings to inspire my work.	I can analyse different architectural drawings, explaining their purpose and how styles have changed over time.	I can critically compare architectural drawing techniques, linking historical styles to modern digital practices and my own projects.
Design Understanding	I can recognise and describe basic architectural drawing methods like orthographic and perspective.	I can explain when and why different drawing techniques are used in architecture.	I can apply architectural drawing methods to communicate how buildings and spaces are designed.	I can creatively combine multiple drawing methods to explore and present architectural ideas with depth and clarity.
Design Specification	I can list the steps and tools needed to complete different architectural drawings.	I can create a simple plan for producing architectural drawings using chosen styles.	I can write a clear and detailed specification for an architectural drawing project, including measurements, styles, and rendering choices.	I can develop a thorough specification that plans out complex drawings, considering technical requirements and presentation standards.
Design Communication	I can label my drawings so people understand what they show.	I can use sketches and simple notes to explain my architectural ideas.	I can produce clear, detailed drawings with accurate labels and scales to communicate design intent.	I can communicate complex architectural ideas using professional-quality drawings, annotations, and rendering techniques.
Equipment Use	I can use basic drawing tools like pencils, rulers, and erasers safely and correctly.	I can measure and draw shapes accurately using drawing tools.	I can handle technical drawing instruments confidently to produce precise architectural drawings.	I can use drawing tools expertly to create highly detailed and accurate architectural visuals suitable for presentation.
Material Understanding	I can identify materials like paper types and drawing media used for architectural drawings.	I can choose suitable materials for different architectural drawing techniques.	I can explain how different materials and media affect the quality and style of my architectural drawings.	I can select and use the best materials and media to achieve professional standards in architectural drawing projects.
Project Evaluation	I can talk about what I like in my architectural drawings.	I can describe what worked well and what could be improved in my drawings.	I can evaluate my drawings against my design goals, considering accuracy and presentation quality.	I can critically assess my drawings, suggesting improvements and linking my learning to professional

				architectural practices.

Year 9 Project 2	WB – Working below end of year expectations	WT – Working towards end of year expectations	WAT – Working at end of year expectations	WA – Working above end of year expectations
Project Research	I can find examples of digital architecture projects and learn who designed them..	I can research how architects use digital tools like Tinkercad and traditional materials like foam board.	I can explain how designers from the past and present influence digital and physical architecture models.	I can analyse how digital and physical modelling techniques impact the design and presentation of architectural projects.
Design Understanding	I can describe the basics of using digital software to create architectural models.	I can explain why architects choose digital or physical modelling techniques.	I can design digital and physical models that show architectural ideas accurately and creatively.	I can combine digital tools and traditional methods to develop innovative architectural designs and models.
Design Specification	I can list the steps and tools needed for a simple digital architecture project.	I can create a basic plan with measurements for building a digital or physical model.	I can create a basic plan with measurements for building a digital or physical model.	I can produce a comprehensive specification, planning for precision, materials, digital files, and 3D printing requirements.
Design Communication	I can use simple digital shapes to show my architecture ideas.	I can add details and labels to my digital and physical models to explain my designs.	I can produce clear digital drawings and physical models that communicate design ideas effectively.	I can professionally present my architecture designs with digital renders, 3D models, and detailed annotations.
Equipment Use	I can use basic digital software tools safely and correctly.	I can create simple digital shapes and physical models using equipment like foam board cutters.	I can confidently use digital software for architectural designs and handle tools for physical model making accurately.	I can expertly use both digital tools and traditional model-making equipment to produce high-quality architectural models.
Material Understanding	I can identify materials like foam board, acrylic, and PLA filament used in architectural models.	I can choose materials suitable for different parts of my architecture project.	I can explain how material properties affect the strength, look, and function of architectural models..	I can select the best materials for specific design needs, considering performance, aesthetics, and sustainability..
Project Evaluation	I can say what I like about my digital or physical architecture model.	I can describe what went well and what I could improve in my project.	I can evaluate my architectural model against my specification and design goals.	I can critically reflect on my project, suggesting improvements and connecting my learning to real-

				world architecture practice.