

Kings Curriculum Map
Design and Technology

	Autumn Term	Spring Term	Summer Term
Year 9	<p>Units: Induction/ Swatch Watch <i>Designing and ideas generation, design strategies/ biomorphisum</i></p> <p>Term content: Isometric, perspective, 20th centenary design movements. Vac forming, Fractal distillation (plastics), 6 R's, Orthographic drawing. Rapid prototyping, use of templates and tessellation, CAD/CAM, JIT, Anthropometrics. User needs design for digital manufacture.</p>	<p>Units: Swatch Watch/ Robotics/ Flashlight</p> <p>Term content: Inputs and outputs, logic diagrams, blocky coding, pic controllers. Scales of production, metals, Injection moulding, Plastics, social moral and environmental issues. Teamwork, problem solving and automation. Product life cycle, LCA analysis. Scales of production, metals, Injection moulding, Plastics, social moral and environmental issues.</p>	<p>Units: Flashlight/ Lamination/ Office Product</p> <p>Term content: Orthographic, applying materials knowledge, polymers and their uses, timber revision, batch production using jigs and templates. Manufactured boards, lamination, finishing. Orthographic, applying materials knowledge, polymers and their uses, timber revision, batch production using jigs and templates.</p>
Year 10	<p>Units: USB Lamp/ Mobile Phone Accessory</p> <p>Term content: Commercial manufacture, electrical systems, input and outputs, how power in generated, planned obsolesce, ethics and the environment, sources of woods and papers. CAD/CAM. Enterprise in DT, market push and consumer pull, market research.</p>	<p>Units: Picture Frame/ Mechanical Movement</p> <p>Term content: Motions and movements, Gear trains, pulleys and drive mechanisms, calculations, using orthographic drawings to assemble the gear box, measuring, marking out and cutting with scalpels, designing a robot with walking features, levers and linkages, input and output motions, magnitude of motion, pulleys and forces. Orthographic, applying materials knowledge, polymers and their uses, timber revision, batch production using jigs and templates.</p>	<p>Units: Sustainability/Start NEA</p> <p>Term content: Sustainability, 6 R's, environmental and social issues of design, carbon footprint. Task analysis, client profile, researching, product analysis.</p>
Year 11	<p>NEA – Generating ideas and development PPE – revision/ exam prep</p> <p>Term content: Revision using Learning to Learn guidance. Generating ideas, analysis, using graphical communication. Modelling and testing. Orthographic drawing. Maths in DT. User needs, how products are manufactured, materials and their origins, orthographic drawing, using specifications, use of data in DT. DT general knowledge. Sustainability and renewable energy, stock forms and physical properties of materials and use of modelling.</p>	<p>NEA – planning for manufacture/ creating a product/ evaluation</p> <p><i>Developing a product (realising design ideas)</i> <i>Culmination of all the practical skills and knowledge amassed so far in DT.</i> <i>Review PPE performance and reflect on how to improve.</i> <i>Evaluation</i></p> <p>Term content: Revision using Learning to Learn guidance. Manufacturing Diary, Testing, Summative Evaluation. Possible Improvements. Revision for upcoming exam.</p>	<p>Exam preparation</p> <p>Term content: Core principles, Designers and design styles, Electronic systems, Ethical issues, how to use a specification, manufacturing learning map, mechanical systems experiment, Standard forms. Revision using Learning to Learn guidance. Mind maps, foldables, flash cards, visual note taking, learning mats, questioning, talking like an expert and test questions.</p>
Year 12	<p>Induction term and skills building/ Assessment Week <i>Induction/ Design skills, Wooden Frame, Laser Cut Clock, CAD 3D printed egg cup, Band Saw project. Laminating and use of Jigs/industrial practices. Innovation in Design</i></p>	<p>Induction Units/ NEA/ PPE Preparation <i>Sustainability, Accessibility in design/ human factors, Historical perspectives, inspiration from the wider world.</i> <i>NEA - Investigate a problem, Time plan project</i></p>	<p>PPE Revision and Reflection/ NEA <i>Research Summary, British standards, Moral, Social and environmental issues. Research Summary, British standards, Moral, Social and environmental issues.</i></p>

	<p><i>and Technology, Reverse engineer a product, Systems and control, Teamwork project. Design principles: Communicating and generating ideas</i></p>	<p><i>management. Designers, Target Market, Product analysis (above and below the line), Existing products and inspiration from the design industry, Human factors - anthropometrics and ergonomics.</i></p>	<p><i>Development of ideas and concepts. CAD modelling and CAD Design. Develop a final concept.</i></p>
<p>Year 13</p>	<p>NEA/ PPE Preparation <i>Orthographic drawing and exploded drawing. Innovation. CAD design in environment, manufacturing spec. Flow Diagram, Quality assurance and Quality Control. Testing construction methods, Additional research, Manufacturing Product, Revision A04 linked to PPE exam</i></p>	<p>NEA/ Exam/ PPE preparation <i>Manufacturing Product. Using finishes on a product, user testing, evaluation and development of product for commercial manufacture. Existing products and inspiration from designers/ design movements/ industry. Human factors -anthropometrics and ergonomics.</i></p>	<p>NEA/ Exam preparation <i>Revision using Learning to Learn guidance. Mind maps, foldables, flash cards, visual note taking, learning mats, questioning, talking like an expert and test questions.</i></p>