

KS4

Year 10 Design Technology

Autumn Term Mechanical Devices and Materials Paper Animal Project		Spring Term Sustainable Furniture Thermometer Project		Summer Term Coursework- Research	
<p>Key knowledge:</p> <ul style="list-style-type: none"> To know about mechanisms such as levers, pulleys, gears and cams. To learn about mechanical advantages. To learn the properties of a range of materials- timber. polymers and metals. To learn the physical and mechanical properties of materials. To learn about the paper making process To learn the properties of paper and board To learn about a range of printing processes To learn about deforestation To learn a range of ranging skills such as isometric, 1 point perspective, 2 point perspective, exploded drawings and orthographic drawings 		<p>Key knowledge:</p> <ul style="list-style-type: none"> To know about the product life cycle and the effect that carbon footprint and the 6R has on the environment. To know about technology push and market pull To research the work of other by looking at designers and design companies To know what built in obsolescence is and the difference between finite and non-finite resources To know what Fairtrade is and the effects it has To know what ergonomics and anthropometric data is and how it can be used to improve products. To know the inputs, processes and outputs of electronic devices. To know about new materials and smart materials. To know a range of natural and synthetic textiles To know about CAM/CAD and scale of production 		<p>Key Knowledge:</p> <ul style="list-style-type: none"> To know the problem and outline solution for the problem To know the user and create a user board To investigation product and find out how they can be improved To know what a design brief is and specification. <p>Slide 1- Investigation Slide 2- The User Slide 3- Product Analysis Slide 4- Design Brief and Design Specification</p>	
<p>Pupils will be able to: Create a mechanical device using a range of mechanisms and materials.</p>	<p>Key Vocabulary: oscillating, rotating, linear, reciprocating, mechanical advantage, levers, 1st order, 2nd order, 3rd order. linkages, gears, pulley, cams. Timbers, polymers, metals, properties. Mechanical pulp, chemical pulp. deforestation, offset lithography, die cutting. 1 point perspective, 2 point perspective, isometric, orthographic drawing</p>	<p>Pupils will be able to: Create a thermometer using smart materials and CAD/CAM</p>	<p>Key Vocabulary: sustainability, carbon footprint, finite and non-finite resources, climate change, pollution, deforestation, global warming, fairtrade, technology push, market pull, designer and design companies, ergonomics and anthropometrics computer aided design, computer aided manufacture, 2D design, 3D rhino, laser cutter, health and safety, electronics, new materials and smart materials, scale of production- one off, batch and mass.</p>	<p>Pupils will be able to: Create high quality coursework</p>	<p>Key Vocabulary: problem, user, social, moral, economic and environmental issues, interview, product analysis, design brief and specification</p>
<p>Assessment: End of topic test for mechanisms, materials, paper and board and communication techniques.</p>		<p>Assessment: End of topic test for sustainability, electronic devices, CAD/CAM and scale of production</p>		<p>Assessment: 50% coursework</p>	
<p>Enrichment Opportunities:</p>		<p>Enrichment Opportunities: University of Central Birmingham- Have a Go session-Hospitality and Catering</p>		<p>Enrichment Opportunities: British Motor Museum in Gaydon</p>	

Year 11 Design Technology

Autumn Term Coursework- Design Ideas, Development and Making		Spring Term Coursework- Making, Testing and Evaluation		Summer Term Exam Preparation	
<p>Key knowledge:</p> <ul style="list-style-type: none"> To know communication techniques to create a range of ideas To design and development your design further and improve them To investigate one design further by research materials, processes, ergonomics, sustainability and specific measurements. To use CAD skills to create a presentation, orthographic and exploded drawing To use a range of practical skill and a range of materials to create your final prototype <p>Slide 5 and 6- Design Ideas Slide 7 and 8- Design Development Slide 9, 10, 11 and 12- Product Development Slide 13- Presentation Drawing Slide 14- Product Specification and Cutting List</p>		<p>Key knowledge:</p> <ul style="list-style-type: none"> To use a range of practical skill and a range of materials to create your final prototype To know how to test and evaluate your final product so improvement can be made <p>Slide 15 and 16- Practical Work Slide 17- Final Prototype Slide 18- Testing Slide 19- Evaluation</p>		<p>Key Knowledge:</p> <ul style="list-style-type: none"> To retrieve knowledge gained in Y10 and activate activities throughout Y11 for the exam topics. Going through past paper and exam questions. Mechanical Device and electronics Materials- timber, metal and polymers Smart materials, new materials and composite materials Scale of production and CAD/CAM Paper and board- die cutting and offset lithography Sustainability and Ergonomics Design Communication- 1 point and 2 point perspective, isometric and orthographic drawings 	
<p>Pupils will be able to: Create high quality coursework</p>	<p>Key Vocabulary: design ideas, drawing techniques, CAD/CAM, materials, processes, sustainability, ergonomics, card modelling</p>	<p>Pupils will be able to: Create high quality coursework</p>	<p>Key Vocabulary: practical work- band saw, pillar drill, sanding machine, router, fret saw, craft knife, laser cutter, 3D printer, vacuum forming, pewter casting, line bending, wood joints, laminating testing and evaluation</p>	<p>Pupils will be able to: Create high quality coursework</p>	<p>Key Vocabulary: all keywords from Y10 in previous terms.</p>
<p>Assessment: 50% coursework</p>		<p>Assessment: 50% coursework</p>		<p>Assessment: 50% coursework</p>	
<p>Enrichment Opportunities: Food Show in Birmingham</p>		<p>Enrichment Opportunities:</p>		<p>Enrichment Opportunities:</p>	