

Design and Technology

Key Stage 2 Curriculum includes -
Design
 - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
 - generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Make
 - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
 - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
Evaluate
 - investigate and analyse a range of existing products
 - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
 - understand how key events and individuals in design and technology have helped shape the world
Technical Knowledge
 - apply their understanding of how to strengthen, stiffen and reinforce more complex structures
 - understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

Term	Yr7	Yr8	Yr9	Yr10	Yr11	Yr12
Autumn 1	<p>Project- Eco Bots -Health and safety -Analysing a Brief -Designing for a client -Eco design and sustainability -Different types of research -Secondary and Primary -Product Analysis -Specification writing -Drawing skills (3D drawing and partial shading) -Working with a range of equipment to shape and finish plastics/ metals and timber -Using different manufacturing process for plastics and metals (Oven shaping and tin snipping etc)</p>	<p>Project - Retro Dock -Health and safety -Analysing a situation and writing a brief -Different types of research - Primary and secondary -Sustainable design -Material Theory -Specification writing -Product Analysis -Designing for a client -Drawing skills (Isometric , exploded views and partial shading) -CAD/CAM - Use of 2D design and google sketchup -Electronics and circuits -Selecting and working with a range or equipment -Displaying of practical skills by producing a variety of wood joints</p>	<p>Practical Skills - Trinket Project -Understanding and working with the resistant materials - Marking out skills - Quality assurance - Producing accurate finger and housing joints - Use of components (hinges) - Creating a working Jig - Using CAD to design surface pattern (reinforcement of bitmapping) -Laser cutting - Finishing techniques</p> <p>Technical knowledge –</p> <p>Core Technical Principles- 1.6 Materials and their working properties 1.3 Developments in new materials</p> <p>Specialist Technical Principles 2.5 Using and working with materials 2.6 Stock forms , types and sizes 2.9 Surface treatments and finishes 2.8 Specialist techniques and processes</p>	<p>Mock Non Examined Assessment - AO1 - Section A - Identifying & investigating design possibilities (10 marks) -Analysis of context ,problem and situation ,Task Analysis -User, client research -Ergonomics and Anthropometric data -Inspiration /Work of others -Product Analysis /Disassembly -Economics and social effects Section B - Producing a design brief & specification (10 marks) -Analysis of research -Design Brief (Links to research) -Design specification</p> <p>Technical knowledge –</p> <p>Specialist Technical Principles 2.3 Ecological and social footprint</p> <p>Design and Make Principles - 3.2 Environmental , social and economic challenge</p>	<p>Non Examined Assessment AO1 -Identifying and investigating design possibilities Section A (10 marks) -Analysis of context ,problem and situation ,Task Analysis -User, client research -Ergonomics and Anthropometric data -Inspiration /Work of others -Product Analysis /Disassembly -Economics and social effects Section B (10 marks) -Analysis of research -Design Brief (Links to research) -Design specification</p> <p>Technical knowledge – -Revision of areas identified by PPE1</p>	<p>Mock Non Examined Assessment - Pallet Project AO1 - Section A -Identifying and investigating design possibilities (20 marks) - Analysis of context ,problem and situation ,Task Analysis -User, client research -Ergonomics and Anthropometric data -Inspiration /Work of others -Product Disassembly -Economics and social effects</p> <p>Section B -Producing a design brief and specification (10 marks) -Analysis of research -Design Brief (Links to research) -Design specification</p> <p>Technical knowledge – Core Technical Principles -Materials and their applications -Testing materials -Performance characteristics of materials</p>
Autumn 2			<p>Book Mark Project - - Secondary research - Inspiration board and Product Analysis -CAD - Use of 2D design to create design ideas . Bitmapping. - Communicating design ideas - Refining and modeling design ideas - CAM - Use of the laser cutter - Nesting and tessellation</p> <p>Technical knowledge –</p> <p>Design and Make Principles- 3.9 Material Management 3.8 Tolerances</p>	<p>Mock Non Examined Assessment AO2 - Section C - Generating design ideas(20 marks) -Initial Ideas ,annotation and client feedback Section D - Developing design ideas (20 marks) -Small card model evaluation -Small card model development -Final Card model and material investigation</p> <p>Technical knowledge Designing and Making Principles 3.3 The work of others 3.5 Communication of design ideas</p> <p>Practical Skills Material Testing , Construction methods and CAM processes - Range of different wooden construction joints , Plastic forming , surface finishes and CAM - Use of laser cutter and vinyl sticker machine</p>	<p>Non Examined Assessment AO2 - Section C - Generating design ideas(20 marks) -Initial Ideas ,annotation and client feedback Section D - Developing design ideas (20 marks) -Small card model evaluation -Small card model development -Final Card model and material investigation -Final Design ,Manufacturing Specification , Orthographic drawing and cutting list.</p> <p>Technical knowledge– Revision of areas identified by PPE1</p>	<p>Mock Non Examined Assessment - Pallet Project AO2- Section C -Development of design proposal(s)(25 marks) Section D- Development of design prototype(s)(25 marks)</p> <p>Technical knowledge – Core Technical Principles -Enhancement of materials -Forming, redistribution and addition processes -The use of finishes</p>

Spring 1
Spring 2
Summer 1

<p>Sketching ,Rendering and Designing - - Freehand drawing - Use of grid to support drawing - Isometric drawing (with and without iso paper) - One and two point perspective drawing - Use of Iso sketch tool - Rendering Techniques - use of tone and texture. Along with use of promarkers , watercolours and pencil crayons</p> <p>Technical knowledge –</p> <p>Design and Make Principles- 3.5 Communication of design ideas</p>	<p>Mock Non Examined Assessment AO2 - Section D - Developing design ideas (20 marks) -Final Design ,Manufacturing Specification , Orthographic drawing and cutting list. Section E - Realising design ideas(20 marks) - -Practical Outcome -QA evidence and Manufacturing diary</p> <p>Technical knowledge-</p> <p>Designing and Making Principles 3.4 Design Strategies 3.6 Prototype development</p>	<p>Non Examined Assessment AO2 - Section D - Developing design ideas (20 marks) -Final Design ,Manufacturing Specification , Orthographic drawing and cutting list. Section E - Realising design ideas(20 marks) Practical Outcome QA evidence and Manufacturing diary</p> <p>Technical knowledge– Revision of areas identified by PPE2</p>	<p>Mock Non Examined Assessment - Pallet Project AO3- Section E -Analysing and evaluating(20 marks)</p> <p>Technical knowledge – Core Technical Principles -Modern and industrial commercial practice -Digital design and manufacture -Product design and development</p> <p>Design and Make Principles -Design methods and processes -Design theory (DMP) -Technology and cultural changes -Design processes (DMP) -Critical analysis and evaluation</p>
	<p>Mock Non Examined Assessment AO2 - Section E - Realising design ideas(20 marks) -Practical Outcome -QA evidence and Manufacturing diary</p> <p>Technical knowledge-</p> <p>Specialist Technical Principles - 2.1 Selection of materials or components 2.4 Source and origins 2.7 Scales of production</p>	<p>Non Examined Assessment AO2 - Section E - Realising design ideas(20 marks) -Practical Outcome -QA evidence and Manufacturing diary</p> <p>AO3 - Section F- Analysing & evaluating (20 marks) -Evaluation against brief and specification -User testing feedback and third party feedback -Future modifications (sketches /CAD included)</p> <p>Technical knowledge- Revision lessons based on areas identified by PPE2/3</p>	<p>Mock Non Examined Assessment - Toothbrush Project AO1 - Section A -Identifying and investigating design possibilities (20 marks) - Analysis of context ,problem and situation ,Task Analysis -User, client research -Ergonomics and Anthropometric data -Inspiration /Work of others -Product Disassembly -Economics and social effects</p> <p>Section B -Producing a design brief and specification (10 marks) -Analysis of research -Design Brief (Links to research) -Design specification</p> <p>Technical knowledge – Core Technical Principles Health and safety Design for manufacturing, maintenance, repair and disposal Enterprise and marketing in the development of products Design communication</p> <p>Design and Make Principles -Selecting appropriate tools, equipment and processes -Accuracy in design and manufacture -Responsible design -Design for manufacture -Technology and cultural changes</p>
	<p>Mock Non Examined Assessment AO3 - Section F- Analysing & evaluating (20 marks) -Evaluation against brief and specification -User testing feedback and third party feedback -Future modifications (sketches /CAD included)</p> <p>Technical knowledge-</p> <p>Core Technical Principles - 1.5 Mechanical Devices 1.1 New Emerging Technologies 1.4 Understanding systems approach when designing</p> <p>Specialist Technical Principles - 2.2 Forces and stresses</p>		<p>Mock Non Examined Assessment - ToothBrush Project AO2- Section C -Development of design proposal(s)(25 marks) Section D- Development of design prototype(s)(25 marks)</p> <p>AO3- Section E -Analysing and evaluating(20 marks)</p> <p>Technical knowledge –</p> <p>Design and Make Principles -Design processes – iterative design in commercial contexts -Design theory -Selecting appropriate tools, equipment and processes -Responsible design -Design for manufacture and project management</p>

Summer2

From June 1st - Non Examined Assessment
Section A (10 marks)



YR13 Non Examined Assessment